

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:	Cloverly Elementary School
Address:	800 Briggs Road
	Silver Spring, MD 20905

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 Kit			
Manufacturer:	Radon Lab			
Person(s) Deploying or Retrieving Test Devices and certification number			Organization/Company	
Shakia Dawkins			KCI Technologies, Inc.	
<i>If noncertified individuals, the qualified measurement professional providing oversight -</i>				
Tyler McCleaf, CSP – Cert. #111004-RMP			KCI Technologies, Inc.	

Testing

<input checked="" type="checkbox"/> Short-Term	Length of Test (days):	3	Date of Deployment and Retrieval (mm/dd/yy):	01/30/2024
<input type="checkbox"/> Long-Term				02/02/2024
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	58	0	58
Duplicates ²	6	0	6
Field Blanks ³	3	0	3
Grand Total			67

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:	58	0	58
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:	1	0	1
Number of missing required test locations ³ :	0	0	0
Percentage of missing test locations for the facility ^{4,5} :	0	0	0

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

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

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

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

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

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

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

1 – if all valid measurements are <4.0-pCi/L and the total number of test locations are ≥18, there is an allowance of ≤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**Cloverly Elementary School****Test Period: 01/30/2024 - 02/02/2024**

Kit Number	Room / Area	Result
11464037	1	< 0.3
11464043	2	0.6
11464038	3	< 0.3
11464039	4	0.7
11464048	5	0.7
11464045	6	0.8
11464050	6	< 0.3
11464049	7	< 0.3
11464034	8	< 0.3
11464032	9	1.0
11464046	10	< 0.3
11482765	10	< 0.3
11464029	11	0.7
11464031	11	< 0.3
11464051	12	< 0.3
11464040	14	< 0.3
11464015	15	0.5
11464017	15	< 0.3
11464013	16	< 0.3
11464018	17	0.6
11464019	18	< 0.3
11464027	19	< 0.3
11464028	20	< 0.3
11464030	21	0.9
11464014	22	2.3
11464001	23	1.3
11464003	23	1.3
11464044	24	0.8
11464042	25	0.5
11482760	25	< 0.3
11464035	26	< 0.3
11464006	31	1.1
11464024	34	0.7
11464008	35	0.8
11464007	36	0.8
11464012	38	< 0.3
11482722	38	< 0.3
11464020	121	0.6

Table 1- Radon Testing Results**Cloverly Elementary School****Test Period: 01/30/2024 - 02/02/2024**

Kit Number	Room / Area	Result
11464033	122	0.6
11464036	123	1.2
11464023	125	1.2
11284356	APR	< 0.3
11284398	APR	0.8
11464047	ART 13	< 0.3
11284382	ASSISTANT PRINCIPAL	< 0.3
11284349	BS OFFICE	< 0.3
11284363	CONFERENCE	< 0.3
11464026	ESOL	< 0.3
11464011	GYM	< 0.3
11464021	GYM	0.5
11464010	GYM OFFICE	< 0.3
11463460	HEALTH	< 0.3
11284392	HEALTH OFFICE	< 0.3
11464004	IMC	1.1
11464025	IMC	1.2
11284345	KITCHEN OFFICE	< 0.3
11463947	MAIN OFFICE	< 0.3
11464009	MEDIA OFFICE	1.5
11464022	MEDIA WORKROOM	1.4
11464005	PARA	1.2
11464041	PEP OFFICE	0.9
11284381	PRINCIPAL	< 0.3
11464002	RESOURCE 32	1.1
11464016	RESOURCE 32	1.2
11284346	STAFF LOUNGE	< 0.3
11284342	STAGE	< 0.3
11284364	WORKROOM	< 0.3

Table 3 - QC Radon Testing Results			
Cloverly Elementary School			
Test Period: 01/30/2024 - 02/02/2024			
Kit Number	QC Type	Room / Area	Result
11464050	D	6	< 0.3
11464031	FB	11	< 0.3
11464015	FB	15	< 0.3
11464001	FB	23	1.3
11284398	D	APR	0.5
11464002	D	Resource 32	1.1
11482722	D	38	< 0.3
11482760	D	25	< 0.3
11482765	D	10	< 0.3

Attachment 2:
Laboratory Reports

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11464037	1	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11464046	10	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11464029	11	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	0.7 ± 0.3	2024-02-06
11464031	11	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11464051	12	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11464020	121	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	0.6 ± 0.3	2024-02-06
11464033	122	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	0.6 ± 0.4	2024-02-06
11464036	123	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	1.2 ± 0.4	2024-02-06
11464023	125	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	1.2 ± 0.4	2024-02-06
11464040	14	2024-01-30 @ 11:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11464015	15	2024-01-30 @ 9:00 am	2024-02-02 @ 9:00 am	0.5 ± 0.3	2024-02-06
11464017	15	2024-01-30 @ 9:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11464013	16	2024-01-30 @ 9:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11464018	17	2024-01-30 @ 9:00 am	2024-02-02 @ 9:00 am	0.6 ± 0.3	2024-02-06
11464019	18	2024-01-30 @ 9:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11464027	19	2024-01-30 @ 9:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11464043	2	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	0.6 ± 0.3	2024-02-06
11464028	20	2024-01-30 @ 9:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11464030	21	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	0.9 ± 0.3	2024-02-06
11464014	22	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	2.3 ± 0.4	2024-02-06
11464001	23	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	1.3 ± 0.4	2024-02-06
11464003	23	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	1.3 ± 0.4	2024-02-06
11464044	24	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	0.8 ± 0.3	2024-02-06
11464042	25	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	0.5 ± 0.3	2024-02-06
11464035	26	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11464038	3	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11464006	31	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	1.1 ± 0.3	2024-02-06
11464024	34	2024-01-30 @ 9:00 am	2024-02-02 @ 9:00 am	0.7 ± 0.3	2024-02-06
11464008	35	2024-01-30 @ 9:00 am	2024-02-02 @ 9:00 am	0.8 ± 0.3	2024-02-06
11464007	36	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	0.8 ± 0.4	2024-02-06
11464012	38	2024-01-30 @ 9:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11464039	4	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	0.7 ± 0.3	2024-02-06
11464048	5	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	0.7 ± 0.3	2024-02-06
11464050	6	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11464045	6	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	0.8 ± 0.4	2024-02-06
11464049	7	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11464034	8	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11464032	9	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	1.0 ± 0.4	2024-02-06
11284356	APR	2024-01-30 @ 9:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11284398	APR	2024-01-30 @ 9:00 am	2024-02-02 @ 9:00 am	0.8 ± 0.3	2024-02-06
11464047	ART 13	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11284382	ASSISTANT PRINCIPAL	2024-01-30 @ 9:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11284349	BS OFFICE	2024-01-30 @ 9:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11284363	CONFERENCE	2024-01-30 @ 9:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11464026	ESOL	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11464021	GYM	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	0.5 ± 0.3	2024-02-06
11464011	GYM	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11464010	GYM OFFICE	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11463460	HEALTH	2024-01-30 @ 9:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11284392	HEALTH OFFICE	2024-01-30 @ 9:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11464025	IMC	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	1.2 ± 0.4	2024-02-06
11464004	IMC	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	1.1 ± 0.4	2024-02-06
11284345	KITCHEN OFFICE	2024-01-30 @ 9:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11463947	MAIN OFFICE	2024-01-30 @ 9:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11464009	MEDIA OFFICE	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	1.5 ± 0.4	2024-02-06
11464022	MEDIA WORKROOM	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	1.4 ± 0.4	2024-02-06
11464005	PARA	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	1.2 ± 0.4	2024-02-06
11464041	PEP OFFICE	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	0.9 ± 0.4	2024-02-06
11284381	PRINCIPAL	2024-01-30 @ 9:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11464002	RESOURCE 32	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	1.1 ± 0.4	2024-02-06
11464016	RESOURCE 32	2024-01-30 @ 10:00 am	2024-02-02 @ 9:00 am	1.2 ± 0.4	2024-02-06
11284346	STAFF LOUNGE	2024-01-30 @ 9:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11284342	STAGE	2024-01-30 @ 9:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06
11284364	WORKROOM	2024-01-30 @ 9:00 am	2024-02-02 @ 9:00 am	< 0.3	2024-02-06

March 6, 2024

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11482765	10	2024-02-27 @ 10:00 am	2024-03-01 @ 1:00 pm	< 0.3	2024-03-05
11482760	25	2024-02-27 @ 10:00 am	2024-03-01 @ 1:00 pm	< 0.3	2024-03-05
11482722	38	2024-02-27 @ 10:00 am	2024-03-01 @ 1:00 pm	< 0.3	2024-03-05

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

February 7, 2024

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
OFFICE BLANK
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11633583	OB	2024-01-30 @ 11:00 am	2024-02-02 @ 11:00 am	< 0.3	2024-02-06

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

February 7, 2024

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
TRAVEL BLANK
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11633584	TB	2024-01-30 @ 11:00 am	2024-02-02 @ 11:00 am	< 0.3	2024-02-06

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

January 29, 2024

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
STORAGE
KCI

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI TECHNOLOGIES, INC Job Number 213327

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

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

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

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

11284003, 11284005, 11284006 _____

11284007, 11284008, 11284013 _____

F3 Left

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

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

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

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

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

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

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

January 29, 2024

**** LABORATORY ANALYSIS REPORT ****

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI TECHNOLOGIES, Inc Job Number 213819

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

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

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

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

11478400, 11477842, 11477845, _____

11477852, 11477996, 11477999 _____

E3 left

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

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

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

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

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

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

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

March 1, 2024

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

FEB SK

MAIN

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

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Testing January 30th – February 2nd 2024

Name of Schools:

1. Damascus HS
2. Fairland ES
3. Jackson Road ES
4. Laytonsville ES
5. William Tyler Page ES
6. Cloverly ES

	Date	Initials
Radon Test Kits Deployed	01/30/2024	JM
Radon Test Kits Collected	02/02/2024	JM
Radon Test Kits Shipped to Lab*	02/02/2024	JM
Radon Test Kits Received by Lab*	02/06/2024	JM

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Testing February 27th to March 1st 2024

Name of Schools:

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

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

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

Attachment 3:
Sampling Location Map



MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	Cloverly Elementary School
Date of Test Report	2/17/2023
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	2
# Rooms \geq 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	2.3 pCi/L

Project Status:

1. Post remediation testing completed.



February 17, 2023

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

Re: **Radon Testing Services**
KCI Job # 122210551

Location: Cloverly Elementary School
800 Briggs Road
Silver Spring, MD 20905

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 Cloverly Elementary School, located at 800 Briggs Rd. Silver Spring, MD 20905 (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 January 24, 2023 and deployed six (6) 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 January 27, 2023 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Accustar Labs - MA. for analysis by gamma-ray spectroscopy.

Accustar Labs - MA is a NRSB certified analytical laboratory for radon analysis (certification #ARL0017) located at 2 Saber Way, Ward Hill, MA 01835.

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 temperatures ranged from the 31°F to 52°F. Maximum sustained winds ranged from 5-25 miles per hour. Average humidity was around 60% with .32 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		
Cloverly ES		
Test Period: 01/24/2023 - 01/227/2023		
Kit Number	Room / Area	Result
11633103	MEDIA STORAGE	1.5
11633112	MEDIA STORAGE	< 0.3
11633161	MEDIA STORAGE	1.9
11633108	MEDIA STORAGE 2	2.3
11633111	MEDIA STORAGE 2	1.7
11633113	MEDIA STORAGE 2	< 0.3

Table 2- Radon Testing Results			
Cloverly ES			
Test Period: 01/24/23 - 01/27/23			
Kit Number	QC Type	Room / Area	Result
11633112	FB	Media Storage	< 0.3
11633161	D	Media Storage	1.9
11633111	D	Media Storage 2	1.7
11633113	FB	Media Storage 2	< 0.3
11633975	OB	OFFICE BLANK	< 0.3
11633983	TB	TRAVEL BLANK	< 0.3

ATTACHMENT C

Laboratory Analytical Results

February 1, 2023

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11633103	MEDIA STORAGE	2023-01-24 @ 11:00 am	2023-01-27 @ 12:00 pm	1.5 ± 0.4	2023-01-31
11633112	MEDIA STORAGE	2023-01-24 @ 11:00 am	2023-01-27 @ 12:00 pm	< 0.3	2023-01-31
11633161	MEDIA STORAGE	2023-01-24 @ 11:00 am	2023-01-27 @ 12:00 pm	1.9 ± 0.4	2023-01-31
11633108	MEDIA STORAGE 2	2023-01-24 @ 11:00 am	2023-01-27 @ 12:00 pm	2.3 ± 0.4	2023-01-31
11633111	MEDIA STORAGE 2	2023-01-24 @ 11:00 am	2023-01-27 @ 12:00 pm	1.7 ± 0.4	2023-01-31
11633113	MEDIA STORAGE 2	2023-01-24 @ 11:00 am	2023-01-27 @ 12:00 pm	< 0.3	2023-01-31

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 KC1 TECHNOLOGIES, INC Job Number 208343

NOMINAL Conditions: Radon Conc 34.7 pCi/L Rel. Hum 49.4 % Temp. 69.6 F

Date Start: 12/24/22 Date Stop: 12/27/22 Date Start: _____ Date Stop: _____

Time Start: 0810 Time Stop: 0810 Time Start: _____ Time Stop: _____

Device No.'s: (5) CHAR BAGS - Device No.'s: _____

11285109, 11285110, 11285101

THRU 11285103

BY 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

December 29, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

OFFICE

MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11285110	SK1	2022-12-24 @ 8:00 am	2022-12-27 @ 8:00 am	31.7 ± 2.5	2022-12-29
11285101	SK2	2022-12-24 @ 8:00 am	2022-12-27 @ 8:00 am	30.1 ± 2.4	2022-12-29
11285103	SK3	2022-12-24 @ 8:00 am	2022-12-27 @ 8:00 am	34.0 ± 2.7	2022-12-29
11285102	SK4	2022-12-24 @ 8:00 am	2022-12-27 @ 8:00 am	30.9 ± 2.5	2022-12-29
11285109	SK5	2022-12-24 @ 8:00 am	2022-12-27 @ 8:00 am	32.0 ± 2.6	2022-12-29

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Week 2 January Schools

Name of Schools:

1. Springbrook HS
2. White Oak MS
3. Cloverly ES
4. Georgian Forest ES
5. Harmony Hills ES
6. Poolesville ES
7. Montrose Center
8. Kingsley Wilderness
9. Poolesville HS
10. Carl Sandburg Learning Center

	Date	Initials
Radon Test Kits Deployed	01/24/2023	BMMY
Radon Test Kits Collected	01/27/2023	BMM
Radon Test Kits Shipped to Lab*	01/27/2023	BMM
Radon Test Kits Received by Lab*	01/31/2023	BMM

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



MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	Cloverly Elementary School
Date of Test Report	05/31/2022
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	2
# Rooms \geq 4.0 pCi/L	0
Lowest Value	0.5 pCi/L
Highest Value	3.8 pCi/L

Project Status

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

Mitigation needed - Media Center



May 31, 2022

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

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

Location: Cloverly Elementary School
800 Briggs Chaney Rd.
Silver Spring, MD 20905

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 Cloverly Elementary School, located at 800 Briggs Chaney Rd. Silver Spring, MD 20905 (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 April 19, 2022 and deployed five (5) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

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

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

KCI returned to the site on April 22, 2022 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

These tests represent:

- Follow-up to initial testing.

These tests were conducted to:

- Evaluate radon concentrations at the facility.

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the low 40°Fs and high temperatures ranged from the low 60°Fs to the mid 80°Fs. Maximum sustained winds ranged from 0-30 miles per hour. Average humidity was around 49% with 0.03 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		
Cloverly ES RT		
Test Period: 04/19/2022 - 04/22/2022		
Kit Number	Room / Area	Result
11139390	MEDIA CENTER	3.8
11139398	MEDIA CENTER	3.4
11139387	MEDIA WORK ROOM	0.5
11139388	MEDIA WORK ROOM	2.2
11139389	MEDIA WORK ROOM	2.7

Table 2- Radon Testing Results			
Cloverly ES RT			
Test Period: 04/19/2022 - 04/22/2022			
Kit Number	QC Type	Room / Area	Result
11139388	D	Media Work Room	2.2
11139387	FB	Media Work Room	0.5
11139882	OB	OFFICE BLANK	< 0.3
11139881	TB	TRAVEL BLANK	< 0.3

ATTACHMENT C

Laboratory Analytical Results

April 25, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11139390	MEDIA CENTER	2022-04-19 @ 1:00 pm	2022-04-22 @ 10:00 am	3.8 ± 0.3	2022-04-25
11139398	MEDIA CENTER	2022-04-19 @ 1:00 pm	2022-04-22 @ 10:00 am	3.4 ± 0.3	2022-04-25
11139387	MEDIA WORK ROOM	2022-04-19 @ 1:00 pm	2022-04-22 @ 10:00 am	0.5 ± 0.3	2022-04-25
11139388	MEDIA WORK ROOM	2022-04-19 @ 1:00 pm	2022-04-22 @ 10:00 am	2.2 ± 0.3	2022-04-25
11139389	MEDIA WORK ROOM	2022-04-19 @ 1:00 pm	2022-04-22 @ 10:00 am	2.7 ± 0.3	2022-04-25

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies, Inc. Job Number 204620

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

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

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

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

11139367, 11139368, 11139371, _____

11139710, 11139717 _____

E3 Right

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

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

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

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

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

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

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

March 30, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

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

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

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon – April 2022 Schools – Retesting

Name of Schools:

1. Pine Crest ES
2. Montgomery Knolls ES
3. Poolesville ES
4. Cloverly ES

	Date	Initials
Radon Test Kits Deployed	04/19/2022	BMM
Radon Test Kits Collected	04/22/2022	BMM
Radon Test Kits Shipped to Lab*	04/22/2022	BMM
Radon Test Kits Received by Lab*	04/25/2022	BMM

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



MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	Cloverly ES
Date of Test Report	4/29/2022
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	60
# Rooms ≥ 4.0 pCi/L	1
Lowest Value	<0.3 pCi/L
Highest Value	5.0 pCi/L

Project Status:

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



April 29, 2022

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

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

Location: Cloverly Elementary School
800 Briggs Chaney Rd.
Silver Spring, MD 20905

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 Cloverly Elementary School, located at 800 Briggs Chaney Rd. Silver Spring, MD 20905. (subject site).

Scope of Services:

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

KCI visited the site on March 8, 2022 and deployed seventy (70) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

KCI returned to the site on March 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 mid 20s and high temperatures ranged from the high 70s to the low 50s Fahrenheit. Maximum sustained winds ranged from 0-32 miles per hour. Average humidity was around 65% with 1.09 inches of precipitation (rain) was recorded during testing period.

Results:

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

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 pCi/L	Media Center	5.0
<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		
Cloverly ES		
Test Period: 03/08/2022 - 03/11/2022		
Kit Number	Room / Area	Result
11132238	1	< 0.3
11132257	2	0.6
11132283	2	< 0.3
11132245	3	0.7
11132260	3	0.8
11132265	4	0.5
11132255	5	0.9
11132240	6	1.2
11132237	7	0.5
11132266	8	0.7
11132274	9	0.8
11132282	10	< 0.3
11132273	11	0.5
11132262	12	< 0.3
11132268	13	0.7
11132225	15	0.6
11132235	15	< 0.3
11132224	16	0.7
11132234	16	0.7
11132236	17	< 0.3
11132229	18	0.6
11132217	19	0.8
11132218	20	< 0.3
11132259	21	1.9
11132258	22	3.4
11132232	23	2.5
11132230	24	2.2
11132254	25	1.4
11132253	26	< 0.3
11132214	30	2.1
11132243	31	1.9
11132227	34	2.2
11132226	35	1.7
11132222	36	0.6
11132228	38	< 0.3
11132246	121	0.8
11132247	122	1.0
11132251	125	1.7
11132244	123 ESOL	1.6
11132248	123 ESOL	1.3
11132256	124 OT/PT	1.2
11132220	37 ESOL	< 0.3

Table 1- Radon Testing Results		
Cloverly ES		
Test Period: 03/08/2022 - 03/11/2022		
Kit Number	Room / Area	Result
11132202	APR 45	1.0
11132203	APR 45	0.8
11132208	ASST PRINCIPAL	0.7
11132212	BS OFFICE	1.0
11132210	CONFERENCE	0.6
11132215	GYM	1.0
11132221	GYM	1.4
11132223	GYM OFFICE	2.2
11132231	GYM OFFICE	2.1
11132216	HEALTH	0.5
11132211	HEALTH OFFICE	< 0.3
11132201	KITCHEN OFFICE	0.7
11132219	MAIN OFFICE	0.6
11132249	MEDIA CENTER	5.0
11132252	MEDIA CENTER	3.5
11132242	MEDIA OFFICE	3.3
11132250	MEDIA OFFICE	3.4
11132233	MEDIA WORKROOM	< 0.3
11132241	MEDIA WORKROOM	3.7
11132261	MUSIC 14	< 0.3
11132239	MUSIC WORKROOM	< 0.3
11132267	MUSIC WORKROOM	< 0.3
11132207	PRINCIPAL	0.5
11132213	RESOURCE	2.6
11132206	STAFF LOUNGE	0.6
11132204	STAGE	0.8
11132209	STAGE	0.8
11132205	TRIAGE	0.6

Table 2- Radon Testing Results			
Cloverly ES			
Test Period: 03/08/2022 - 03/11/2022			
Kit Number	QC Type	Room / Area	Result
11132209	D	Stage	0.8
11132224	D	16	0.7
11132235	FB	15	< 0.3
11132231	D	Gym Office	2.1
11132242	D	Media Office	3.3
11132233	FB	Media Workroom	< 0.3
11132248	D	123 ESOL	1.3
11132260	D	3	0.8
11132283	FB	2	< 0.3
11132239	D	Music Workroom	< 0.3
11131663	OB	OFFICE BLANK	< 0.3
11131669	TB	TRAVEL BLANK	< 0.3

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:**CLOVERLY ES**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11132238	1	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	< 0.3	2022-03-14
11132282	10	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	< 0.3	2022-03-14
11132273	11	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	0.5 ± 0.3	2022-03-14
11132262	12	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	< 0.3	2022-03-14
11132246	121	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	0.8 ± 0.3	2022-03-14
11132247	122	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	1.0 ± 0.3	2022-03-14
11132244	123 ESOL	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	1.6 ± 0.3	2022-03-14
11132248	123 ESOL	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	1.3 ± 0.3	2022-03-14
11132256	124 OT/PT	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	1.2 ± 0.3	2022-03-14
11132251	125	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	1.7 ± 0.3	2022-03-14
11132268	13	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	0.7 ± 0.3	2022-03-14
11132225	15	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	0.6 ± 0.3	2022-03-14
11132235	15	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	< 0.3	2022-03-14
11132224	16	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	0.7 ± 0.3	2022-03-14
11132234	16	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	0.7 ± 0.3	2022-03-14
11132236	17	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	< 0.3	2022-03-14
11132229	18	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	0.6 ± 0.3	2022-03-14
11132217	19	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	0.8 ± 0.3	2022-03-14
11132257	2	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	0.6 ± 0.3	2022-03-14
11132283	2	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	< 0.3	2022-03-14
11132218	20	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	< 0.3	2022-03-14
11132259	21	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	1.9 ± 0.3	2022-03-14
11132258	22	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	3.4 ± 0.4	2022-03-14
11132232	23	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	2.5 ± 0.3	2022-03-14
11132230	24	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	2.2 ± 0.3	2022-03-14
11132254	25	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	1.4 ± 0.3	2022-03-14
11132253	26	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	< 0.3	2022-03-14
11132260	3	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	0.8 ± 0.3	2022-03-14
11132245	3	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	0.7 ± 0.3	2022-03-14
11132214	30	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	2.1 ± 0.3	2022-03-14
11132243	31	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	1.9 ± 0.3	2022-03-14
11132227	34	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	2.2 ± 0.3	2022-03-14
11132226	35	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	1.7 ± 0.3	2022-03-14
11132222	36	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	0.6 ± 0.3	2022-03-14
11132220	37 ESOL	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	< 0.3	2022-03-14
11132228	38	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	< 0.3	2022-03-14
11132265	4	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	0.5 ± 0.3	2022-03-14

Radon test result report for:**CLOVERLY ES**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11132255	5	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	0.9 ± 0.3	2022-03-14
11132240	6	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	1.2 ± 0.3	2022-03-14
11132237	7	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	0.5 ± 0.3	2022-03-14
11132266	8	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	0.7 ± 0.3	2022-03-14
11132274	9	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	0.8 ± 0.3	2022-03-14
11132202	APR 45	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	1.0 ± 0.3	2022-03-14
11132203	APR 45	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	0.8 ± 0.3	2022-03-14
11132208	ASST PRINCIPAL	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	0.7 ± 0.3	2022-03-14
11132212	BS OFFICE	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	1.0 ± 0.3	2022-03-14
11132210	CONFERENCE	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	0.6 ± 0.3	2022-03-14
11132221	GYM	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	1.4 ± 0.3	2022-03-14
11132215	GYM	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	1.0 ± 0.3	2022-03-14
11132231	GYM OFFICE	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	2.1 ± 0.3	2022-03-14
11132223	GYM OFFICE	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	2.2 ± 0.3	2022-03-14
11132216	HEALTH	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	0.5 ± 0.3	2022-03-14
11132211	HEALTH OFFICE	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	< 0.3	2022-03-14
11132201	KITCHEN OFFICE	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	0.7 ± 0.3	2022-03-14
11132219	MAIN OFFICE	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	0.6 ± 0.3	2022-03-14
11132252	MEDIA CENTER	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	3.5 ± 0.4	2022-03-14
11132249	MEDIA CENTER	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	5.0 ± 0.4	2022-03-14
11132242	MEDIA OFFICE	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	3.3 ± 0.3	2022-03-14
11132250	MEDIA OFFICE	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	3.4 ± 0.3	2022-03-14
11132241	MEDIA WORKROOM	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	3.7 ± 0.4	2022-03-14
11132233	MEDIA WORKROOM	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	< 0.3	2022-03-14
11132261	MUSIC 14	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	< 0.3	2022-03-14
11132239	MUSIC WORKROOM	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	< 0.3	2022-03-14
11132267	MUSIC WORKROOM	2022-03-08 @ 9:00 am	2022-03-11 @ 8:00 am	< 0.3	2022-03-14
11132207	PRINCIPAL	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	0.5 ± 0.3	2022-03-14
11132213	RESOURCE	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	2.6 ± 0.3	2022-03-14
11132206	STAFF LOUNGE	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	0.6 ± 0.3	2022-03-14
11132209	STAGE	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	0.8 ± 0.3	2022-03-14
11132204	STAGE	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	0.8 ± 0.3	2022-03-14
11132205	TRIAGE	2022-03-08 @ 8:00 am	2022-03-11 @ 8:00 am	0.6 ± 0.3	2022-03-14

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies, Inc. Job Number 204620

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

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

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

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

11139367, 11139368, 11139371, _____

11139710, 11139717 _____

E3 light

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

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

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

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

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

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

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

March 30, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

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

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

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon – March 2022 Schools

Name of Schools:

1. Fairland Center
2. Cloverly ES
3. Drew, Dr. Charles ES
4. Weller Road ES
5. Wheaton HS
6. East Silver Spring ES
7. Rosemary Hills ES

	Date	Initials
Radon Test Kits Deployed	03/08/2022	BMM
Radon Test Kits Collected	03/11/2022	BMM
Radon Test Kits Shipped to Lab*	03/11/2022	BMM
Radon Test Kits Received by Lab*	03/13/2022	BMM

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

RADON SCREENING SURVEY – FOLLOW-UP CLOVERLY ELEMENTARY SCHOOL

800 Briggs Chaney Road,
Silver Spring, Maryland 20905

EXECUTIVE SUMMARY

Date of Test Report:	3/15/19
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	3
# Rooms \geq 4.0 pCi/L:	0
Low Value:	0.9
High Value:	2.2
Confirmed Rooms \geq 4.0 pCi/L US EPA Action Level	0

Summary of Sampling Events \geq 4.0 pCi/L

Room	Result (pCi/L) 2/13/19	Result (pCi/L) 3/15/19	Average Result (pCi/L)
24	4.3	2.1	3.2
IMC	4.2	2.2	3.2



MONTGOMERY COUNTY PUBLIC SCHOOLS RADON TESTING

Executive Summary: Cloverly Elementary School

800 Briggs Chaney Road,
Silver Spring, MD 20905

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:	3
# of Rooms \geq 4.0 pCi/L:	0
Low Value:	0.9
High Value:	2.2

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: Cloverly Elementary School
800 Briggs Chaney Road,
Silver Spring, MD 20905

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 Cloverly Elementary School, located at 800 Briggs Chaney Road, Silver Spring, MD 20905 (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 25, 2019 and deployed three (3) 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 February 28, 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 # ARLO007).

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.

ATTACHMENT B

Radon Test Summary Spreadsheet

Radon Testing Results		
Cloverly Elementary School		
Testing period: 2/25/19 - 2/28/19		
Kit Number	Room / Area	Result (pCi/L)
3923459	24	2.1
3923457	45 (APR)	0.9
3923469	IMC	2.2

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

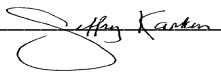
MCPS Radon Survey Clovelly ES
800 Briggs Chaney Road
Silver Spring MD 20905

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
3220629	3923457	02/25/2019 12:05 pm 02/28/2019 12:00 pm	Floor Main Room 45 (APR)	0.9
3220630	3923469	02/25/2019 12:10 pm 02/28/2019 12:01 pm	Floor Main Room IMC	2.2
3220631	3923459	02/25/2019 12:12 pm 02/28/2019 12:02 pm	Floor Main Room 24	2.1

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

Distributed by: Intertek-PSI (VA)

Date Received: 03/04/2019 Date Logged: 03/04/2019 Date Analyzed: 03/05/2019 Date Reported: 03/05/2019

Report Reviewed By: 

Report Approved By: 

Disclaimer:

The uncertainty of this radon measurement is $\sim\pm 10\%$. 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

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MONTGOMERY COUNTY PUBLIC SCHOOLS RADON TESTING

Executive Summary: Cloverly Elementary School

800 Briggs Chaney Road,
Silver Spring, MD 20905

Date of Test Report:	2/13/2019
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:	55
# of Rooms \geq 4.0 pCi/L:	2
Low Value:	< 0.4
High Value:	4.3
Rooms with Results	24
\geq 4.0 pCi/L:	IMC

Project Status

Initial testing complete: Re-test needed for results \geq 4.0 pCi/L.
Missing or compromised samples need re-test.



February 13, 2019

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

Re: Radon Testing Services

Location: Cloverly Elementary School
800 Briggs Chaney Road,
Silver Spring, MD 20905

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 Cloverly Elementary School, located at 800 Briggs Chaney Road, Silver Spring, MD 20905 (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 November 13, 2018 and deployed seventy (70) activated charcoal (AC) radon test kits. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on November 16, 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	24	4.3
	IMC	4.2
≤ 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		
Cloverly Elementary School		
Testing period: 11/13/18 - 11/16/18		
Kit Number	Room / Area	Result (pCi/L)
3918055	1	<0.4
3918056	2	0.4
3918057	3	1.3
3918059	4	0.9
3918050	5	1.9
3918048	6	3.8
3918032	7	2.1
3918049	8	2.5
3918058	9	3.8
3918053	10	<0.4
3918054	11	<0.4
3918052	12	<0.4
3918051	13	<0.4
3918030	15	0.6
3918044	16	0.7
3918028	17	0.4
3918027	18	0.9
3918029	19	<0.4
3918026	20	0.5
3918171	21	1.0
3918119	22	2.0
3918115	23	2.3
3918112	24	4.3
3918140	25	1.6
3918023	26	1.2
3918172	30	0.8
3918173	31	1.6
3918174	32	2.4
3918177	34	1.5
3918180	35	0.8
3918176	36	0.6
3918179	37	<0.4
3916275	38	<0.4
3918136	43	<0.4
3881199	45	0.5
3881249	45 (MISSING)	--
3918197	47	<0.4
3918138	121	0.8
3918139	122	1.5
3918219	123	0.5
3918111	124	1.3
3918113	125	2.9
3918114	125 Office	2.6

Radon Testing Results		
Cloverly Elementary School		
Testing period: 11/13/18 - 11/16/18		
Kit Number	Room / Area	Result (pCi/L)
3918194	AP	<0.4
3918089	Building Services	0.7
3918196	Confrence Room	<0.4
3881209	Gym G1	1.5
3881201	Gym G1	1.4
3918175	Gym Office	2.4
3918192	Health	1.8
3918193	Health Office	0.4
3918116	IMC	4.2
3918117	IMC	3.9
3918118	IMC Office	2.2
3918191	Main Office	<0.4
3918199	Music	2.1
3918195	Principal's Office	<0.4
3918198	WorkRoom	<0.4

Radon Testing Results		
Cloverly Elementary School		
Testing period: 11/13/18 - 11/16/18		
Kit Number	QC Type	Result (pCi/L)
3918060	4 (D)	1.1
3918225	20 (D)	1.5
3918120	22 (D)	2.2
3918047	25 (D)	1.3
3918178	34 (D)	1.6
3918033	43 (D)	<0.4
3918043	Building Services (D)	0.7
3918200	Music (D)	<0.4
3918181	Office Blank	<0.4
3918011	Trip Blank	<0.4
3916191	Field Blank	<0.4
3916032	Field Blank	<0.4

Table Notes:

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control

ATTACHMENT C

Laboratory Analytical Results

NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey
Cloverly Elementary School
Silver Spring MD 20905


Log Number	Device Number	Test Exposure	Duration:	Area Tested	Result pCi/L
2393063	3881249	11/13/2018 11:44 am	11/16/2018 7:29 am	Not Indicated	0.5
2393742	3918054	11/13/2018 6:28 pm	11/16/2018 11:19 am	Bldg Cloverly Elementary School Floor 1 Room 1	< 0.4
2393743	3918055	11/13/2018 6:29 pm	11/16/2018 11:20 am	Bldg Cloverly Elementary School Floor 1 Room 1	< 0.4
2393744	3918056	11/13/2018 6:31 pm	11/16/2018 11:20 am	Bldg Cloverly Elementary School Floor 1 Room 2	0.4
2393745	3918057	11/13/2018 6:33 pm	11/16/2018 11:22 am	Bldg Cloverly Elementary School Floor 1 Room 3	1.3
2393746	3918058	11/13/2018 6:34 pm	11/16/2018 11:22 am	Bldg Cloverly Elementary School Floor 1 Room 9	3.8
2393747	3918059	11/13/2018 6:07 pm	11/16/2018 11:23 am	Bldg Cloverly Elementary School Floor 1 Room 4	0.9
2393748	3918060	11/13/2018 6:37 pm	11/16/2018 11:23 am	Bldg Cloverly Elementary School Floor 1 Room 4	1.1
2393749	3918049	11/13/2018 6:39 pm	11/16/2018 11:14 am	Bldg Cloverly Elementary School Floor 1 Room 8	2.5
2393750	3918050	11/13/2018 6:40 pm	11/16/2018 11:14 am	Bldg Cloverly Elementary School Floor 1 Room 5	1.9
2393751	3918032	11/13/2018 6:01 pm	11/16/2018 11:25 am	Bldg Cloverly Elementary School Floor 1 Room 7	2.1

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

Distributed by: Intertek-PSI (VA)

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Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NRSB ARL0017

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey
Cloverly Elementary School
Silver Spring MD 20905


Log Number	Device Number	Test Exposure	Duration:	Area Tested	Result pCi/L
2393752	3918048	11/13/2018 6:42 pm	11/16/2018 11:26 am	Bldg Cloverly Elementary School Floor 1 Room 6	3.8
2393753	3918138	11/13/2018 6:43 pm	11/16/2018 11:26 am	Bldg Cloverly Elementary School Flr 1 Rm 121	0.8
2393754	3918139	11/13/2018 6:44 pm	11/16/2018 11:26 am	Bldg Cloverly Elementary School Flr 1 Rm 122	1.5
2393755	3918219	11/13/2018 6:45 pm	11/16/2018 11:27 am	Bldg Cloverly Elementary School Flr 1 Rm 123	0.5
2393756	3918023	11/13/2018 6:06 pm	11/16/2018 11:27 am	Bldg Cloverly Elementary School Floor 1 Room 2	1.2
2393757	3918140	11/13/2018 6:47 pm	11/16/2018 11:28 am	Bldg Cloverly Elementary School Floor 1 Room 2	1.6
2393758	3918047	11/13/2018 6:47 pm	11/16/2018 11:28 am	Bldg Cloverly Elementary School Floor 1 Room 2	1.3
2393759	3918111	11/13/2018 6:48 pm	11/16/2018 12:00 am	Bldg Cloverly Elementary School Flr 1 Rm 124	1.3
2393760	3918112	11/13/2018 6:50 pm	11/16/2018 11:30 am	Bldg Cloverly Elementary School Floor 1 Room 2	4.3
2393761	3918113	11/13/2018 6:51 pm	11/16/2018 11:29 am	Bldg Cloverly Elementary School Flr 1 Rm 125	2.9
2393762	3918114	11/13/2018 6:53 pm	11/16/2018 11:29 am	Bldg Cloverly Elementary School Flr 1 Rm 125 Of	2.6

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Laboratory Report for:

Property Tested: Project # 04481387-1

Intertek-PSI (VA)
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Fairfax VA 22031


MCPS Radon Survey
Cloverly Elementary School
Silver Spring MD 20905


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2393763	3918115	11/13/2018 6:56 pm 11/16/2018 11:30 am	Bldg Cloverly Elementary School Floor 1 Room 2	2.3
2393764	3918116	11/13/2018 6:58 pm 11/16/2018 11:30 am	Bldg Cloverly Elementary School Flr 1 Rm IMC	4.2
2393765	3918117	11/13/2018 6:58 pm 11/16/2018 11:32 am	Bldg Cloverly Elementary School Flr 1 Rm IMC	3.9
2393766	3918118	11/13/2018 6:59 pm 11/16/2018 11:33 am	Bldg Cloverly Elementary School Flr 1 Rm IMC Of	2.2
2393767	3918119	11/13/2018 7:01 pm 11/16/2018 11:30 am	Bldg Cloverly Elementary School Floor 1 Room 2	2.0
2393768	3918120	11/13/2018 7:01 pm 11/16/2018 11:30 am	Bldg Cloverly Elementary School Floor 1 Room 2	2.2
2393769	3918171	11/13/2018 7:02 pm 11/16/2018 11:35 am	Bldg Cloverly Elementary School Floor 1 Room 2	2.0
2393770	3918172	11/13/2018 7:03 pm 11/16/2018 11:35 am	Bldg Cloverly Elementary School Floor 1 Room 3	1.0
2393771	3918173	11/13/2018 7:04 pm 11/16/2018 11:35 am	Bldg Cloverly Elementary School Floor 1 Room 3	0.8
2393772	3918174	11/13/2018 7:06 pm 11/16/2018 11:35 am	Bldg Cloverly Elementary School Floor 1 Room 3	1.6
2393773	3918175	11/13/2018 7:10 pm 11/16/2018 11:51 am	Bldg Cloverly Elementary School Flr 1 Rm Gym	2.4

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NRSB ARL0017

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey
Cloverly Elementary School
Silver Spring MD 20905


Log Number	Device Number	Test Exposure	Duration:	Area Tested	Result pCi/L
2393774	3918176	11/13/2018 7:11 pm	11/16/2018 11:38 am	Bldg Cloverly Elementary School Floor 1 Room 3	0.6
2393775	3918177	11/13/2018 7:11 pm	11/16/2018 11:38 am	Bldg Cloverly Elementary School Floor 1 Room 3	1.5
2393776	3918178	11/13/2018 7:13 pm	11/16/2018 11:38 am	Bldg Cloverly Elementary School Floor 1 Room 3	1.6
2393777	3918179	11/13/2018 7:15 pm	11/16/2018 11:38 am	Bldg Cloverly Elementary School Floor 1 Room 3	< 0.4
2393778	3918180	11/13/2018 7:15 pm	11/16/2018 11:38 am	Bldg Cloverly Elementary School Floor 1 Room 3	0.8
2393779	3916275	11/13/2018 7:06 pm	11/16/2018 11:38 am	Bldg Cloverly Elementary School Floor 1 Room 3	< 0.4
2393780	3918030	11/13/2018 7:17 pm	11/16/2018 11:39 am	Bldg Cloverly Elementary School Floor 1 Room 1	0.6
2393781	3918044	11/13/2018 7:18 pm	11/16/2018 11:41 am	Bldg Cloverly Elementary School Floor 1 Room 1	0.7
2393782	3918191	11/13/2018 6:14 pm	11/16/2018 11:10 am	Bldg Cloverly Elementary School Flr 1 Rm Main	< 0.4
2393783	3918192	11/13/2018 6:17 pm	11/16/2018 11:11 am	Bldg Cloverly Elementary School Flr 1 Rm Health	1.8
2393784	3918193	11/13/2018 6:17 pm	11/16/2018 10:12 am	Bldg Cloverly Elementary School Flr 1 Rm Health	0.4

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Property Tested: Project # 04481387-1

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MCPS Radon Survey
Cloverly Elementary School
Silver Spring MD 20905


Log Number	Device Number	Test Exposure	Duration:	Area Tested	Result pCi/L
2393785	3918194	11/13/2018 6:18 pm	11/16/2018 11:15 am	Bldg Cloverly Elementary School Floor 1 Room A	< 0.4
2393786	3918195	11/13/2018 6:20 pm	11/16/2018 11:13 am	Bldg Cloverly Elementary School Flr 1 Rm Princip	< 0.4
2393787	3918196	11/13/2018 6:21 pm	11/16/2018 11:14 am	Bldg Cloverly Elementary School Flr 1 Rm Confre	< 0.4
2393788	3918197	11/13/2018 6:21 pm	11/16/2018 11:17 am	Bldg Cloverly Elementary School Floor 1 Room 4	< 0.4
2393789	3918198	11/13/2018 6:23 pm	11/16/2018 11:15 am	Bldg Cloverly Elementary School Flr 1 Rm WorkR	< 0.4
2393790	3918199	11/13/2018 6:24 pm	11/16/2018 11:16 am	Bldg Cloverly Elementary School Flr 1 Rm Music	2.1
2393791	3918200	11/13/2018 6:24 pm	11/16/2018 11:16 am	Bldg Cloverly Elementary School Flr 1 Rm Music	< 0.4
2393792	3918051	11/13/2018 6:25 pm	11/16/2018 11:18 am	Bldg Cloverly Elementary School Floor 1 Room 1	< 0.4
2393793	3918052	11/13/2018 6:27 pm	11/16/2018 11:18 am	Bldg Cloverly Elementary School Floor 1 Room 1	< 0.4
2393794	3918053	11/13/2018 6:28 pm	11/16/2018 11:19 am	Bldg Cloverly Elementary School Floor 1 Room 1	< 0.4
2393795	3918028	11/13/2018 7:19 am	11/16/2018 11:41 am	Bldg Cloverly Elementary School Floor 1 Room 1	0.4

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NRPP 103216 AL
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Cloverly Elementary School
Silver Spring MD 20905


Log Number	Device Number	Test Exposure Duration:				Area Tested	Result pCi/L
2393796	3918027	11/13/2018	7:19 am	11/16/2018	11:42 am	Bldg Cloverly Elementary School Floor 1 Room 1	0.9
2393797	3918029	11/13/2018	7:09 am	11/16/2018	11:42 am	Bldg Cloverly Elementary School Floor 1 Room 1	< 0.4
2393798	3918026	11/13/2018	7:22 pm	11/16/2018	11:43 am	Bldg Cloverly Elementary School Floor 1 Room 2	0.5
2393799	3918225	11/13/2018	7:23 pm	11/16/2018	11:43 am	Bldg Cloverly Elementary School Floor 1 Room 2	1.5
2393800	3918089	11/13/2018	7:27 pm	11/16/2018	11:44 am	Bldg Cloverly Elementary School Flr 1 Rm Buildin	0.7
2393801	3918043	11/13/2018	7:27 pm	11/16/2018	11:44 am	Bldg Cloverly Elementary School Flr 1 Rm Buildin	0.7
2393802	3918136	11/13/2018	7:39 pm	11/16/2018	11:45 am	Bldg Cloverly Elementary School Floor 1 Room 4	< 0.4
2393803	3918033	11/13/2018	7:39 pm	11/16/2018	11:46 am	Bldg Cloverly Elementary School Floor 1 Room 4	< 0.4
2393804	3916191	11/13/2018	6:14 pm	11/16/2018	11:46 am	Bldg Cloverly Elementary School	< 0.4
2393805	3916032	11/13/2018	6:14 pm	11/16/2018	11:46 am	Bldg Cloverly Elementary School	<0.4
2393806	3918181	11/13/2018	6:00 am	11/16/2018	11:46 am	Bldg Cloverly Elementary School	< 0.4

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Shawn Price, Director of Laboratory Operations, AccuStar Labs

Disclaimer:

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

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

NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey
Cloverly Elementary School
Silver Spring MD 20905


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2393807	3918011	11/13/2018 6:00 am 11/16/2018 11:46 am	Bldg Cloverly Elementary School	< 0.4

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

Distributed by: Intertek-PSI (VA)

Date Received: 11/18/2018 Date Logged: 11/18/2018 Date Analyzed: 11/19/2018 Date Reported: 12/13/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

Disclaimer:

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

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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.

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.

NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey
Cloverly Elementary School
Silver Spring MD 20905


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2393056	3881199	11/13/2018 11:45 am 11/16/2018 7:28 am	Bldg. Cloverly Elementary School Floor 1 Room 45	0.5
2393058	3881201	11/13/2018 11:37 am 11/16/2018 7:07 am	Bldg. Cloverly Elementary School Flr 1 Rm Gym G	1.4
2393059	3881209	11/13/2018 11:37 am 11/16/2018 7:06 am	Bldg. Cloverly Elementary School Flr 1 Rm Gym G	1.5

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

Distributed by: Intertek-PSI (VA)

Date Received: 11/18/2018 Date Logged: 11/18/2018 Date Analyzed: 11/19/2018 Date Reported: 12/13/2018

Report Reviewed By: 

Report Approved By: 

Disclaimer:

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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. Highland View ES | 6. EB Lee MS | 11. Cannon Rd ES |
| 2. Kemp Mill ES | 7. Forest Knolls ES | 12. Cloverly ES |
| 3. Sligo Creek ES | 8. Galway ES | 13. Springbrook HS |
| 4. Highland ES | 9. Wheaton HS | |
| 5. Kennedy HS | 10. Briggs Chaney MS | |

	Date	Initials
Radon Test Kits Deployed	11/13/2018	NL
Radon Test Kits Sampled	11/16/2018	NL
Radon Test Kits Shipped to Lab*	11/16/2018	NL
Radon Test Kits Received by Lab*	11/17/2018; 11/18/2018; 11/20/2018	NL

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



MCPS RADON TESTING - EXECUTIVE SUMMARY

Site Name	Cloverly Elementary School
Date of Report	March 12, 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	9
# Rooms \geq 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	3.3 pCi/L

Project Status

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



March 12, 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: Cloverly Elementary School

800 Briggs Chaney Rd.
Silver Spring, Maryland 20905

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 Cloverly Elementary School, located at 800 Briggs Chaney Rd. in Silver Spring, Maryland 20905 (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 13, 2018 and deployed twelve (12) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

1. Rooms not successfully tested,
2. Rooms with elevated November 2017 results (i.e. ≥ 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 16, 2018 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Aircheck, Inc. for analysis by gamma-ray spectroscopy. Aircheck, Inc. is a NRSB certified analytical laboratory for radon analysis (certification #ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

EVALUATION OF TESTING CONDITIONS

These tests represent:

- Follow-up to post-mitigation biennial testing.

These tests were conducted to:

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

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

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

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

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

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

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

Sincerely,



Radon Measurement Specialist
KCI Technologies, Inc.

Attachments:

B - Radon Test Summary Spreadsheets

C - Laboratory Analytical Results

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Table 1- Radon Testing Results		
Cloverly Elementary School		
Test Period: 02/13/18-02/16/18		
Kit Number	Room / Area	Result
7978116	BLDG SERVICES	2.0
7978176	GYM OFFICE	1.8
7978181	IMU	2.0
7978179	IMU	2.1
7978133	IMU OFFICE	2.5
7978182	IMU STORAGE	3.3
7978118	KIDS CO	< 0.3
7978120	* KITCHEN (Missing)	-
7978119	KITCHEN OFFICE	0.6
7978117	STAGE	0.6

Table Note:

* Missing or Compromised Sample

Table 2- Radon Testing Results		
Cloverly Elementary School		
Test Period: 02/13/18-02/16/18		
Kit Number	QC Type	Result
7978185	D (IMU OFFICE)	2.1
7978177	FB (IMU OFFICE)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7978116	BLDG SERVICES	2018-02-13 @ 2:00 pm	2018-02-16 @ 12:00 pm	2.0 ± 0.3	2018-02-20
7978176	GYM OFFICE	2018-02-13 @ 2:00 pm	2018-02-16 @ 11:00 am	1.8 ± 0.4	2018-02-20
7978181	IMU	2018-02-13 @ 2:00 pm	2018-02-16 @ 12:00 pm	2.0 ± 0.4	2018-02-20
7978179	IMU	2018-02-13 @ 2:00 pm	2018-02-16 @ 12:00 pm	2.1 ± 0.4	2018-02-20
7978133	IMU OFFICE	2018-02-13 @ 2:00 pm	2018-02-16 @ 12:00 pm	2.5 ± 0.4	2018-02-20
7978185	IMU OFFICE	2018-02-13 @ 2:00 pm	2018-02-16 @ 12:00 pm	2.1 ± 0.4	2018-02-20
7978177	IMU OFFICE	2018-02-13 @ 2:00 pm	2018-02-16 @ 12:00 pm	< 0.3	2018-02-20
7978182	IMU STORAGE	2018-02-13 @ 2:00 pm	2018-02-16 @ 12:00 pm	3.3 ± 0.4	2018-02-20
7978118	KIDS CO	2018-02-13 @ 1:00 pm	2018-02-16 @ 11:00 am	< 0.3	2018-02-20
7978120	KITCHEN	@	@		
7978119	KITCHEN OFFICE	2018-02-13 @ 1:00 pm	2018-02-16 @ 11:00 am	0.6 ± 0.3	2018-02-20
7978117	STAGE	2018-02-13 @ 1:00 pm	2018-02-16 @ 11:00 am	0.6 ± 0.3	2018-02-20



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase

Names of Schools:

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

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

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

Radon test result report for:
OFFICE BLANKS

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 μ R/h Elevation = 820 ft



MCPS RADON TESTING - EXECUTIVE SUMMARY

Site Name	Cloverly Elementary School
Date of Report	January 30, 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	0
Lowest Value	< 0.3 pCi/L
Highest Value	1.7 pCi/L

Project Status

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



January 30, 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: Cloverly Elementary School

800 Briggs Chaney Rd.
Silver Spring , Maryland 20905

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 Cloverly Elementary School, located at 800 Briggs Chaney Rd. in Silver Spring , Maryland 20905 (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 27, 2017 and deployed fifty-nine (59) 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 November 30, 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	None	N/A
≤ 4.0 pCi/L	See Attachment B	See Attachment B

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

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

Sincerely,



James Mouldsdale, 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		
Cloverly Elementary School		
Test Period: 11/27/17-11/30/17		
Kit Number	Room / Area	Result
7976400	1	< 0.3
7976101	2	1.0
7976102	3	1.0
7976103	4	0.7
7976104	5	< 0.3
7976105	6	0.6
7976106	7	< 0.3
7976107	8	0.8
7976108	9	< 0.3
7976394	10	0.9
7976393	11	0.5
7976396	12	< 0.3
7976397	13	0.7
7976399	14	0.7
7976139	15	< 0.3
7976136	16	< 0.3
7976135	17	< 0.3
7976134	18	< 0.3
7976138	19	< 0.3
7976137	20	0.6
7976122	21	1.3
7976121	22	1.6
7976120	23	0.7
7976116	24	0.9
7976115	25	0.5
7976113	26	< 0.3
7976124	30	1.1
7976125	31	1.1
7976123	32	0.9
7976132	34	0.7
7976131	35	0.8
7976129	36	0.8
7976130	37	0.7
7976133	38	< 0.3
7976109	121	0.6
7976110	122	1.0
7976112	123	< 0.3
7976118	124	1.5
7976119	125	1.3
7976395	ASST PRIN	0.6
7976140	CAFE	< 0.3
7976141	CAFE	< 0.3
7976392	CONF ROOM OFFICE	< 0.3
7976127	GYM	1.1
7976128	GYM	1.1
7976389	HEALTH	< 0.3

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Cloverly Elementary School		
Test Period: 11/27/17-11/30/17		
Kit Number	Room / Area	Result
7976388	MAIN OFFICE	< 0.3
7976142	MEDIA CENTER	1.4
7976143	MEDIA CENTER	1.7
7976144	MEDIA OFFICE	1.4
7976126	PE OFFICE	1.7
7976391	PRINCIPLE	< 0.3
7976398	STAFF LOUNGE	0.6

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Cloverly Elementary School		
Test Period: 11/27/17-11/30/17		
Kit Number	QC Type	Result
7976111	D (123)	0.6
7976117	D (124)	1.6
7976387	D (HEALTH)	0.7
7976114	FB (26)	< 0.3
7976390	FB (HEALTH)	< 0.3
7977272	OB (OB)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7976400	1	2017-11-27 @ 6:00 pm	2017-11-30 @ 1:00 pm	< 0.3	2017-12-04
7976394	10	2017-11-27 @ 6:00 pm	2017-11-30 @ 1:00 pm	0.9 ± 0.3	2017-12-04
7976393	11	2017-11-27 @ 6:00 pm	2017-11-30 @ 1:00 pm	0.5 ± 0.3	2017-12-04
7976396	12	2017-11-27 @ 6:00 pm	2017-11-30 @ 1:00 pm	< 0.3	2017-12-04
7976109	121	2017-11-27 @ 6:00 pm	2017-11-30 @ 1:00 pm	0.6 ± 0.3	2017-12-04
7976110	122	2017-11-27 @ 6:00 pm	2017-11-30 @ 1:00 pm	1.0 ± 0.3	2017-12-04
7976112	123	2017-11-27 @ 6:00 pm	2017-11-30 @ 1:00 pm	< 0.3	2017-12-04
7976111	123	2017-11-27 @ 6:00 pm	2017-11-30 @ 1:00 pm	0.6 ± 0.3	2017-12-04
7976117	124	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	1.6 ± 0.4	2017-12-04
7976118	124	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	1.5 ± 0.4	2017-12-04
7976119	125	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	1.3 ± 0.3	2017-12-04
7976397	13	2017-11-27 @ 6:00 pm	2017-11-30 @ 1:00 pm	0.7 ± 0.3	2017-12-04
7976399	14	2017-11-27 @ 6:00 pm	2017-11-30 @ 1:00 pm	0.7 ± 0.3	2017-12-04
7976139	15	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	< 0.3	2017-12-04
7976136	16	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	< 0.3	2017-12-04
7976135	17	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	< 0.3	2017-12-04
7976134	18	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	< 0.3	2017-12-04
7976138	19	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	< 0.3	2017-12-04
7976101	2	2017-11-27 @ 6:00 pm	2017-11-30 @ 1:00 pm	1.0 ± 0.3	2017-12-05
7976137	20	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	0.6 ± 0.3	2017-12-04
7976122	21	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	1.3 ± 0.4	2017-12-05
7976121	22	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	1.6 ± 0.3	2017-12-04
7976120	23	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	0.7 ± 0.3	2017-12-04
7976116	24	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	0.9 ± 0.3	2017-12-04
7976115	25	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	0.5 ± 0.3	2017-12-05
7976113	26	2017-11-27 @ 6:00 pm	2017-11-30 @ 1:00 pm	< 0.3	2017-12-04
7976114	26	2017-11-27 @ 6:00 pm	2017-11-30 @ 1:00 pm	< 0.3	2017-12-04
7976102	3	2017-11-27 @ 6:00 pm	2017-11-30 @ 1:00 pm	1.0 ± 0.3	2017-12-05
7976124	30	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	1.1 ± 0.3	2017-12-04
7976125	31	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	1.1 ± 0.4	2017-12-05
7976123	32	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	0.9 ± 0.3	2017-12-04
7976132	34	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	0.7 ± 0.3	2017-12-04
7976131	35	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	0.8 ± 0.3	2017-12-04
7976129	36	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	0.8 ± 0.3	2017-12-04
7976130	37	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	0.7 ± 0.3	2017-12-04
7976133	38	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	< 0.3	2017-12-04
7976103	4	2017-11-27 @ 6:00 pm	2017-11-30 @ 1:00 pm	0.7 ± 0.3	2017-12-04

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7976104	5	2017-11-27 @ 6:00 pm	2017-11-30 @ 1:00 pm	< 0.3	2017-12-04
7976105	6	2017-11-27 @ 6:00 pm	2017-11-30 @ 1:00 pm	0.6 ± 0.3	2017-12-04
7976106	7	2017-11-27 @ 6:00 pm	2017-11-30 @ 1:00 pm	< 0.3	2017-12-04
7976107	8	2017-11-27 @ 6:00 pm	2017-11-30 @ 1:00 pm	0.8 ± 0.3	2017-12-05
7976108	9	2017-11-27 @ 6:00 pm	2017-11-30 @ 1:00 pm	< 0.3	2017-12-04
7976395	ASST PRIN	2017-11-27 @ 6:00 pm	2017-11-30 @ 1:00 pm	0.6 ± 0.3	2017-12-04
7976140	CAFE	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	< 0.3	2017-12-04
7976141	CAFE	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	< 0.3	2017-12-04
7976392	CONF ROOM OFFICE	2017-11-27 @ 6:00 pm	2017-11-30 @ 1:00 pm	< 0.3	2017-12-04
7976128	GYM	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	1.1 ± 0.3	2017-12-04
7976127	GYM	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	1.1 ± 0.3	2017-12-04
7976387	HEALTH	2017-11-27 @ 5:00 pm	2017-11-30 @ 1:00 pm	0.7 ± 0.3	2017-12-04
7976389	HEALTH	2017-11-27 @ 5:00 pm	2017-11-30 @ 1:00 pm	< 0.3	2017-12-04
7976390	HEALTH	2017-11-27 @ 5:00 pm	2017-11-30 @ 1:00 pm	< 0.3	2017-12-04
7976388	MAIN OFFICE	2017-11-27 @ 5:00 pm	2017-11-30 @ 1:00 pm	< 0.3	2017-12-04
7976142	MEDIA CENTER	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	1.4 ± 0.3	2017-12-04
7976143	MEDIA CENTER	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	1.7 ± 0.4	2017-12-04
7976144	MEDIA OFFICE	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	1.4 ± 0.3	2017-12-04
7977272	OB	2017-11-27 @ 2:00 pm	2017-11-30 @ 2:00 pm	< 0.3	2017-12-05
7976126	PE OFFICE	2017-11-27 @ 7:00 pm	2017-11-30 @ 1:00 pm	1.7 ± 0.3	2017-12-04
7976391	PRINCIPLE	2017-11-27 @ 6:00 pm	2017-11-30 @ 1:00 pm	< 0.3	2017-12-04
7976398	STAFF LOUNGE	2017-11-27 @ 6:00 pm	2017-11-30 @ 1:00 pm	0.6 ± 0.3	2017-12-04



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase

Names of Schools:

- | | |
|----------------------------------------------|---------------------------------------|
| 1. Montgomery Knolls Elementary School | 14. Flora Singer Elementary School |
| 2. New Hampshire Estates Elementary School | 15. Sligo Middle School |
| 3. Montgomery Blair High School | 16. Mario Loiederman Middle School |
| 4. Silver Creek Middle School | 17. Roscoe Nix Elementary School |
| 5. Sligo Creek Elementary School | 18. Sargent Shriver Elementary School |
| 6. East Silver Spring Elementary School | 19. |
| 7. Silver Spring International Middle School | 20. |
| 8. Woodlin Elementary School | 21. |
| 9. Northwood High School | 22. |
| 10. Spring Mill Center | 23. |
| 11. Westbrook Elementary School | 24. |
| 12. Westland Middle School | 25. |
| 13. Cloverly Elementary School | 26. |

	Date	Initials
Radon Test Kits Deployed	11/27/17	JM
Radon Test Kits Collected	11/30/17	JM
Radon Test Kits Shipped to Lab*	11/30/17	JM
Radon Test Kits Received by Lab*	12/04/17	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: Cloverly Elementary School

Date of Test Report:	5/12/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	49
# Rooms \geq 4.0 pCi/L:	0
Low Value:	< 0.4
High Value:	3.2

Project Status:

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



May 12, 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 # 12146341.36

Location: Cloverly Elementary School
800 Briggs Chaney Road
Silver Spring, MD 20905

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 Cloverly Elementary School, located at 800 Briggs Chaney Road in Silver Spring, Maryland 20905 (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 April 11, 2016 and deployed fifty-nine (59) 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 TCS Industries Inc. as spike samples. The spiked tests were exposed to a known radon concentration by TCS prior to being returned to the laboratory for analysis.

KCI returned to the site on April 14, 2016 to retrieve the radon sampling test kits. KCI 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 (certification # ARL0007) located at 929 Mount

Zion Road, Lebanon, Pennsylvania.

Evaluation of Testing Conditions:

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:
D- Duplicate sample

The field blank, office blank, and lab transit blank 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 (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 14 testing. Office blanks were not submitted under each school individually.

Radon Testing Results		
Cloverly Elementary School		
Test Period: 04/11/16-04/14/16		
Kit Number	Room / Area	Result
3029060	Asst. Principle	0.7
3029063	BLDG SERV.	1.2
3029233	Comp Lab	1.1
3029206	Conference Rm	0.5
3029057	FAC	<0.4
3029212	* GYM (tampered)	0.6
3029282	* GYM (tampered)	<0.4
3029186	GYM OFFICE	0.7
3029059	Health Rm	0.5
3029061	IMU	<0.4
3029058	Main Office	0.4
3029192	Media Center	2.7
3029237	Media Center	2.6
3029221	Media Center Office	3.2
3029055	MPR	<0.4
3029257	* MPR (missing)	-
3029187	* MPR (missing)	-
3029053	MU	<0.4
3029205	Principle	<0.4
3029065	Room 10	<0.4
3029066	Room 11	<0.4
3029052	Room 12	0.4
3029225	Room 121	<0.4
3029169	Room 122	0.5
3029184	Room 123	<0.4
3029256	Room 125	1.7
3029056	Room 13	0.4
3029167	Room 15	<0.4
3029284	Room 16	<0.4
3029281	Room 17	<0.4
3029062	Room 18	0.6
3029290	Room 19	0.4
3029067	Room 2	0.5
3029190	* Room 20 (missing)	-
3029215	Room 21	0.6
3029163	Room 22	1.0
3029273	Room 23	1.3
3029287	Room 24	0.5
3029213	Room 25	<0.4
3029288	Room 26	<0.4
3029064	Room 3	0.8
3029168	Room 30	2.4
3029289	Room 31	0.9
3029162	Room 32	0.9
3029216	Room 34	<0.4
3029283	Room 35	1.2

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Cloverly Elementary School		
Test Period: 04/11/16-04/14/16		
Kit Number	Room / Area	Result
3029227	Room 36	0.5
3029121	Room 4	<0.4
3029235	Room 5	<0.4
3029286	Room 6	<0.4
3029164	Room 7	<0.4
3029165	Room 8	0.6
3029211	Room 9	0.6

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Cloverly Elementary School		
Test Period: 04/11/16-04/14/16		
Kit Number	QC Type	Result
3029258	D (Media Center)	2.0
3029204	D (Principle)	<0.4
3029054	D (Room 12)	<0.4
3029285	D (Room 36)	0.9
3029170	D (Room 6)	<0.4
3029223	FB (Room 6)	<0.4

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

NRPP 10511AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested:

KCI Technologies
936 Ridgebrook Rd
Sparks MD 21152

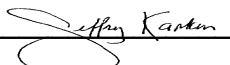
Cloverly E.S.
800 Briggs Chaney Rd
Silver Spring MD 20905

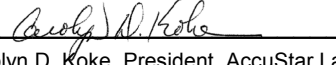
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3021896	3029170	04/11/2016 9:00 am	04/14/2016 1:20 pm	Room 6 First Floor	<0.4
3021897	3029223	04/11/2016 9:02 am	04/14/2016 1:22 pm	Room 6 First Floor	<0.4
3021898	3029164	04/11/2016 9:05 am	04/14/2016 1:25 pm	Room 7 First Floor	<0.4
3021899	3029235	04/11/2016 9:07 am	04/14/2016 1:27 pm	Room 5 First Floor	<0.4
3021900	3029121	04/11/2016 9:13 am	04/14/2016 1:35 pm	Room 4 First Floor	<0.4
3021901	3029211	04/11/2016 9:15 am	04/14/2016 1:37 pm	Room 9 First Floor	0.6
3021902	3029064	04/11/2016 9:20 am	04/14/2016 1:40 pm	Room 3 First Floor	0.8
3021903	3029066	04/11/2016 9:25 am	04/14/2016 1:45 pm	Room 11 First Floor	<0.4
3021904	3029065	04/11/2016 9:27 am	04/14/2016 1:47 pm	Room 10 First Floor	<0.4
3021905	3029052	04/11/2016 9:30 am	04/14/2016 1:50 pm	Room 12 First Floor	0.4

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Report Reviewed By: 

Report Approved By: 

Carolyn D. Koke, President, AccuStar Labs

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NRPP 10511AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested:

KCI Technologies
936 Ridgebrook Rd
Sparks MD 21152

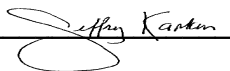
Cloverly E.S.
800 Briggs Chaney Rd
Silver Spring MD 20905

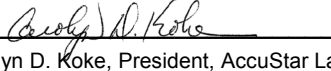
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3021906	3029054	04/11/2016 9:31 am	04/14/2016 1:53 pm	Room 12 First Floor	<0.4
3021907	3029056	04/11/2016 9:35 am	04/14/2016 1:55 pm	Room 13 First Floor	0.4
3021908	3029053	04/11/2016 9:40 am	04/14/2016 2:00 pm	MU First Floor	<0.4
3021909	3029055	04/11/2016 9:41 am	04/14/2016 2:10 pm	MPR First Floor	<0.4
3021910	3029057	04/11/2016 9:45 am	04/14/2016 2:13 pm	FAC First Floor	<0.4
3021911	3029063	04/11/2016 9:47 am	04/14/2016 2:15 pm	Building Service First Floor	1.2
3021912	3029290	04/11/2016 7:36 am	04/14/2016 11:40 am	Room 19 First Floor	0.4
3021913	3029281	04/11/2016 7:40 am	04/14/2016 11:45 am	Room 17 First Floor	<0.4
3021914	3029284	04/11/2016 7:43 am	04/14/2016 11:50 am	Room 16 First Floor	<0.4
3021915	3029283	04/11/2016 7:48 am	04/14/2016 11:57 am	Room 35 First Floor	1.2

Comment: AMENDED REPORT on 4-20-16 to update device numbers, rooms and dates/times. Device#'s 3029257, 3029187 & 3029190 were not received with this datasheet. A copy of this report was emailed to tehsin@kci.com.

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Report Reviewed By: 

Report Approved By: 
Carolyn D. Koke, President, AccuStar Labs

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NRPP 10511AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested:

KCI Technologies
936 Ridgebrook Rd
Sparks MD 21152

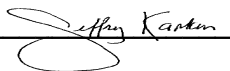
Cloverly E.S.
800 Briggs Chaney Rd
Silver Spring MD 20905

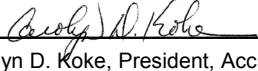
Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3021916	3029216	04/11/2016 7:49 am - 04/14/2016 12:00 pm	Room 34 First Floor	<0.4
3021917	3029285	04/11/2016 7:50 am - 04/14/2016 12:05 pm	Room 36 First Floor	0.9
3021918	3029186	04/11/2016 7:55 am - 04/14/2016 12:07 pm	Gym Office First Floor	0.7
3021919	3029282	04/11/2016 8:06 am - 04/14/2016 12:09 pm	Gym-Fallen First Floor	<0.4
3021920	3029058	04/11/2016 9:50 am - 04/14/2016 2:20 pm	Main Office First Floor	0.4
3021921	3029059	04/11/2016 9:55 am - 04/14/2016 2:22 pm	Health Room First Floor	0.5
3021922	3029060	04/11/2016 9:57 am - 04/14/2016 2:25 pm	Asst Principal First Floor	0.7
3021923	3029205	04/11/2016 10:06 am - 04/14/2016 2:27 pm	Principal First Floor	<0.4
3021924	3029204	04/11/2016 10:03 am - 04/14/2016 2:30 pm	Principal First Floor	<0.4
3021925	3029206	04/11/2016 10:05 am - 04/14/2016 2:35 pm	Conference Room First Floor	0.5

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Report Approved By: 
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NRPP 10511AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested:

KCI Technologies
936 Ridgebrook Rd
Sparks MD 21152

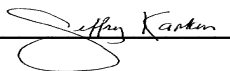
Cloverly E.S.
800 Briggs Chaney Rd
Silver Spring MD 20905

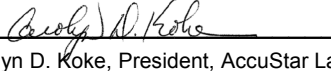
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3021926	3029212	04/11/2016 8:05 am	04/14/2016 12:10 pm	Gym First Floor	0.6
3021927	3029168	04/11/2016 8:07 am	04/14/2016 12:12 pm	Room 30 First Floor	2.4
3021928	3029289	04/11/2016 8:10 am	04/14/2016 12:15 pm	Room 31 First Floor	0.9
3021929	3029162	04/11/2016 8:15 am	04/14/2016 12:20 pm	Room 32 First Floor	0.9
3021930	3029215	04/11/2016 8:17 am	04/14/2016 12:30 pm	Room 21 First Floor	0.6
3021931	3029163	04/11/2016 8:20 am	04/14/2016 12:35 pm	Room 22 First Floor	1.0
3021932	3029237	04/11/2016 8:23 am	04/14/2016 12:37 pm	Media Center First Floor	2.6
3021933	3029258	04/11/2016 8:27 am	04/14/2016 12:43 pm	Media Center First Floor	2.0
3021934	3029221	04/11/2016 8:30 am	04/14/2016 12:45 pm	Media Center First Floor	3.2
3021935	3029273	04/11/2016 8:25 am	04/14/2016 12:47 pm	Room 23 First Floor	1.3

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Report Approved By: 
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NRPP 10511AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested:

KCI Technologies
936 Ridgebrook Rd
Sparks MD 21152

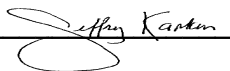
Cloverly E.S.
800 Briggs Chaney Rd
Silver Spring MD 20905

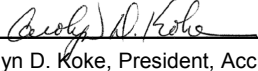
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3021936	3029287	04/11/2016 8:27 am	04/14/2016 12:50 pm	Room 24 First Floor	0.5
3021937	3029256	04/11/2016 8:30 am	04/14/2016 12:52 pm	Room 125 First Floor	1.7
3021938	3029213	04/11/2016 8:37 am	04/14/2016 1:00 pm	Room 25 First Floor	<0.4
3021939	3029184	04/11/2016 8:40 am	04/14/2016 1:05 pm	Room 123 First Floor	<0.4
3021940	3029288	04/11/2016 8:43 am	04/14/2016 1:10 pm	Room 26 First Floor	<0.4
3021941	3029169	04/11/2016 8:45 am	04/14/2016 1:13 pm	Room 122 First Floor	0.5
3021942	3029225	04/11/2016 8:47 am	04/14/2016 1:15 pm	Room 121 First Floor	<0.4
3021943	3029286	04/11/2016 8:56 am	04/14/2016 1:17 pm	Room 6 First Floor	<0.4
3021944	3029061	04/11/2016 10:15 am	04/14/2016 2:45 pm	Room IMU First Floor	<0.4
3021945	3029062	04/11/2016 10:10 am	04/14/2016 2:40 pm	Room 18 First Floor	0.6

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NRSB ARL0007

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

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Property Tested:

KCI Technologies
936 Ridgebrook Rd
Sparks MD 21152

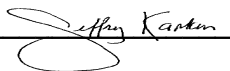
Cloverly E.S.
800 Briggs Chaney Rd
Silver Spring MD 20905

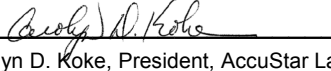
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3021946	3029067	04/11/2016 9:23 am	04/14/2016 1:43 pm	Room 2 First Floor	0.5
3021947	3029165	04/11/2016 9:10 am	04/14/2016 1:30 pm	Room 8 First Floor	0.6
3021948	3029167	04/11/2016 10:15 am	04/14/2016 2:45 pm	Room 15 First Floor	<0.4
3021949	3029192	04/11/2016 8:25 am	04/14/2016 12:40 pm	Media Center First Floor	2.7
3021950	3029233	04/11/2016 8:35 am	04/14/2016 12:55 pm	Computer Lab	1.1
3021951	3029227	04/11/2016 7:49 am	04/14/2016 12:00 pm	Room 36 First Floor	0.5

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Radon Device Type Open Face Canister

Send Written Report To:

Name: KCI Technologies, Inc
 Address: 936 Ridgebrook Road
 Address:
 City / Town: Sparks
 State/Province: MD Postal Code: 21152
 Report Country: Baltimore County
 Email Address: tehsin@kci.com

Site Tested:

Site Name: Cloverly S.S.
 Address:
 Address:
 City / Town:
 State/Province: MD Postal Code:
 Test Country: Montgomery County
 Project Number: 12146341

Contact Information:

Contact: Tehsin Aurangabadwala
 Telephone: 410-891-1726
 Technician:
 Cert. Number:
 Signature:

Lab Use Only	Device Number	Building Number	Unit Number	Floor	Name of Room	Start Date mm/dd/yyyy	Start Time hh:mm am / pm	Stop Date mm/dd/yyyy	Stop Time hh:mm am / pm	Lab Use Only
	3029170				Rm 6	4/11/2016	9 ⁰⁰	4/14/2016	1 ²⁰	
	3029223				Rm 6	↓	9 ⁰²		1 ²²	
	3029164				Rm 7		9 ⁰⁵		1 ²⁵	
	3029235				Rm 5		9 ⁰⁷		1 ²⁷	
	3029165				Rm 8		9 ¹⁰		1 ³⁰	
	3029121				Rm 4		9 ¹³		1 ³⁵	
	3029211				Rm 9		9 ¹⁵		1 ³⁷	
	3029064				Rm 3		9 ²⁰		1 ⁴⁰	
	3029067				Rm 2		9 ²³		1 ⁴³	
	3029066				Rm 11		9 ²⁵		1 ⁴⁵	

Radon Device Type Open Face Canister

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 Address: 936 Ridgebrook Road
 Address:
 City / Town: Sparks
 State/Province: MD Postal Code: 21152
 Report Country: Baltimore County
 Email Address: tehsin@kci.com

Site Tested:

Site Name: Cloverly E.S.
 Address:
 Address:
 City / Town:
 State/Province: MD Postal Code:
 Test Country: Montgomery County
 Project Number: 12146341

Contact Information:

Contact: Tehsin Aurangabadwala
 Telephone: 410-891-1726
 Technician:
 Cert. Number:
 Signature:

Lab Use Only	Device Number	Building Number	Unit Number	Floor	Name of Room	Start Date mm/dd/yyyy	Start Time hh:mm am / pm	Stop Date mm/dd/yyyy	Stop Time hh:mm am / pm	Lab Use Only
	3029190			1	Rm 20	4/11/2016	7 ³⁵	missing		
	3029290				Rm 19	↓	7 ³⁶	4/14/2016	11 ⁴⁰	
	3029281				Rm 17		7 ⁴⁰		11 ⁴⁵	
	3029284				Rm 16		7 ⁴³		11 ⁵⁰	
	3029061 3029187				IMU		7 ⁴⁵		11 ⁵⁵	
	3029283				Rm 35		7 ⁴⁸		11 ⁵⁷	
	3029227				Rm 36		7 ⁴⁹		12 ⁰⁰	
	3029285				Rm 36		7 ⁵⁰		12 ⁰⁵	
	3029186				Gym OFFICE		7 ⁵⁵		12 ⁰⁷	
	3029282				Gym-Fallen		8 ⁰⁰		12 ⁰⁹	

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Name: KCI Technologies, Inc
 Address: 936 Ridgebrook Road
 Address:
 City / Town: Sparks
 State/Province: MD Postal Code: 21152
 Report Country: Baltimore County
 Email Address: tehsin@kci.com

Site Tested:

Site Name: Cloverly S.S.
 Address:
 Address:
 City / Town:
 State/Province: MD Postal Code:
 Test Country: Montgomery County
 Project Number: 12146341

Contact Information:

Contact: Tehsin Aurangabadwala
 Telephone: 410-891-1726
 Technician:
 Cert. Number:
 Signature:

Lab Use Only	Device Number	Building Number	Unit Number	Floor	Name of Room	Start Date mm/dd/yyyy	Start Time hh:mm am / pm	Stop Date mm/dd/yyyy	Stop Time hh:mm am / pm	Lab Use Only
	3029273									
	3029051				Rm 23	4/11/2016	8 ²⁵	4/14/2016	12 ⁴⁷	
	3029287				Rm 24	↓	8 ²⁷	↓	12 ⁵⁰	
	3029256			Rm 125	8 ³⁰		12 ⁵²			
	3029233			Computer Lab.	8 ³⁵		12 ⁵⁵			
	3029213			Rm 25	8 ³⁷		1 ⁰⁰			
	3029184			Rm 123	8 ⁴⁰		1 ⁰⁵			
	3029288			Rm 26	8 ⁴³		1 ¹⁰			
	3029169			Rm 122	8 ⁴⁵		1 ¹³			
	3029225			Rm 121	8 ⁴⁷		1 ¹⁵			
	3029286			Rm 6	8 ⁵²		1 ¹⁷			

Radon Device Type Open Face Canister

Send Written Report To:

Name: KCI Technologies, Inc
 Address: 936 Ridgebrook Road
 Address:
 City / Town: Sparks
 State/Province: MD Postal Code: 21152
 Report Country: Baltimore County
 Email Address: tehsin@kci.com

Site Tested:

Site Name: Cloverly E. S.
 Address: 800 Briggs Chaisey Rd
 Address:
 City / Town: Silver Spring
 State/Province: MD Postal Code: 20905
 Test Country: Montgomery County
 Project Number: 12146341

Contact Information:

Contact: Tehsin Aurangabadwala
 Telephone: 410-891-1726
 Technician:
 Cert. Number:
 Signature:

Lab Use Only	Device Number	Building Number	Unit Number	Floor	Name of Room	Start Date mm/dd/yyyy	Start Time hh:mm am / pm	Stop Date mm/dd/yyyy	Stop Time hh:mm am / pm	Lab Use Only
	3029212				Gym - Follen	4/11/2016	8 ⁰⁵ AM	4/14/2016	12 ¹⁰ PM	
	3029168				Rm 30	↓	8 ⁰⁷	↓	12 ¹²	
	3029289			Rm 31	8 ¹⁰		12 ¹⁵			
	3029162			Rm 32	8 ¹⁵		12 ²⁰			
	3029215			Rm 21	8 ¹⁷		12 ³⁰			
	3029163			Rm 22	8 ²⁰		12 ³⁵			
	3029237			Media Cnt	8 ²³		12 ³⁷			
	3029192			Media Cnt	8 ²⁵		12 ⁴⁰			
	3029258			Media Cnt	8 ²⁷		12 ⁴³			
	3029221			Media Cnt. OFF	8 ³⁰		12 ⁴⁵			

Radon Device Type Open Face Canister

Send Written Report To:

Name: KCI Technologies, Inc
 Address: 936 Ridgebrook Road
 Address:
 City / Town: Sparks
 State/Province: MD Postal Code: 21152
 Report Country: Baltimore County
 Email Address: tehsin@kci.com

Site Tested:

Site Name: Cloverly, E.S.
 Address:
 Address:
 City / Town:
 State/Province: MD Postal Code:
 Test Country: Montgomery County
 Project Number: 12146341

Contact Information:

Contact: Tehsin Aurangabadwala
 Telephone: 410-891-1726
 Technician:
 Cert. Number:
 Signature:

Lab Use Only	Device Number	Building Number	Unit Number	Floor	Name of Room	Start Date mm/dd/yyyy	Start Time hh:mm am / pm	Stop Date mm/dd/yyyy	Stop Time hh:mm am / pm	Lab Use Only
	3029065				Rm 10	4/11/2016	9:27	4/14/2016	1:47	
	3029052				Rm 12	V	9:30	V	1:50	
	3029054			Rm 12	9:31		1:53			
	3029056			Rm 13	9:35		1:55			
	3029053			MU	9:40		2:00			
	3029055			MPR	9:41		2:16			
	3029257			MPR	9:43		Missing			
	3029057			FAC	9:45		2:13			
	3029063			Bldg Serv.	9:47		2:15			
	3029187			MPR	9:43		Missing			

Radon Device Type Open Face Canister

Send Written Report To:

Name: KCI Technologies, Inc
 Address: 936 Ridgebrook Road
 Address:
 City / Town: Sparks
 State/Province: MD Postal Code: 21152
 Report Country: Baltimore County
 Email Address: tehsin@kci.com

Site Tested:

Site Name: Cloverly E. S.
 Address:
 Address:
 City / Town:
 State/Province: MD Postal Code:
 Test Country: Montgomery County
 Project Number: 12146341

Contact Information:

Contact: Tehsin Aurangabadwala
 Telephone: 410-891-1726
 Technician:
 Cert. Number:
 Signature:

Lab Use Only	Device Number	Building Number	Unit Number	Floor	Name of Room	Start Date mm/dd/yyyy	Start Time hh:mm am / pm	Stop Date mm/dd/yyyy	Stop Time hh:mm am / pm	Lab Use Only
	3029258				Main Office	4/14/2016	9 ⁵⁰	4/14/2016	2 ²⁰	
	3029059				Health Rm	↓	9 ⁵⁵	↓	2 ²²	
	3029060			Asst. Prin	9 ⁵⁷		2 ²⁵			
	3029205			Principal	10 ⁰⁰		2 ²⁷			
	3029204			Principal	10 ⁰³		2 ³⁰			
	3029206			conference Rm	10 ⁰⁵		2 ³⁵			
	3029062			Rm 18	10 ¹⁰		2 ⁴⁰			
	3029167			Rm 15	10 ¹⁵		2 ⁴⁵			
	3029216			Rm 34	7 ⁴⁹		12 ⁰⁰			

NRPP 10511AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 12146341

KCI Technologies
936 Ridgebrook Rd
Sparks MD 21152

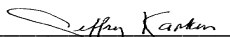
MCPS PHASE 14 Office Blank

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3021886	3029022	04/11/2016 9:00 am 04/14/2016 9:00 am	Office Unit 0 First Floor	<0.4

Comment: A copy of this report was emailed to tehsin@kci.com.

Distributed by: KCI Technologies, Inc.

Date Received: 04/18/2016 Date Logged: 04/18/2016 Date Analyzed: 04/18/2016 Date Reported: 04/18/2016

Report Reviewed By: 

Report Approved By: 

Carolyn D. Koke, President, AccuStar Labs

Disclaimer:

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

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

NRPP 10511AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested:

KCI Technologies
936 Ridgebrook Rd
Sparks MD 21152

MCPS
Transit Blanks

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3010588	3028953	01/19/2016 1:00 pm	01/22/2016 9:30 am	1	< 0.4
3010589	3028955	01/19/2016 1:00 pm	01/22/2016 9:30 am	2	< 0.4
3010590	3028954	01/19/2016 1:00 pm	01/22/2016 9:30 am	3	< 0.4
3010591	3028997	01/19/2016 1:00 pm	01/22/2016 9:30 am	4	< 0.4

Comment: AMENDED REPORT for 3028953-8955, 3028997 on 2/22/16 to add all missing information from the blank datasheet. A copy of this report was emailed to james.mouldsdales@kci.com.

Distributed by: KCI Technologies, Inc.

Date Received: 01/27/2016 Date Logged: 01/27/2016 Date Analyzed: 01/28/2016 Date Reported: 01/28/2016

Report Reviewed By: Christie Bates

Report Approved By: Carolyn D. Koke

Carolyn D. Koke, President, AccuStar Labs

Disclaimer:

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

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Return canisters for analysis to:
AccuStar Labs
929 Mt. Zion Rd., Lebanon, PA 17046
800-523-4964

AccuStar Labs - Lebanon, PA
INFORMATION FORM - Large Buildings -
Projects - Apartments

Instructions on back of form
Read instructions carefully
Discrepancies will invalidate tests

Test Site Info

Name of Building/Project or Owner: Transit
 Site Address: Transit
 City: _____ State: _____ Zip: _____ County: _____
 Projects Contact Name: Don Coale Phone: _____ Email: _____

Do not use this form in
New Jersey or Florida
Call for correct forms.

Multi-Page Report Y-N

LAB USE ONLY	
Wgt. Gain	pCi/L
	204
	204
	204
	204

Detector Serial#	ROOM NAME & NUMBER - LOCATION OF DETECTOR IN ROOM (indicate duplicates and blanks)	Floor	Start Date	Start Time Include AM/PM	Stop Date	Stop Time Include AM/PM
3028953	Transit	1	1/19/16	approx: 00pm 1/23/16		9:30am
8955	Transit	1	1/19/16			
8954	Transit	1	1/19/16			
8997	Transit	1	1/19/16			

1/27/2016

KCI Technologies, Inc.

3010588 3028953 ACPC275B EXP12/31/2018

Structure Type: (circle one or more) Basement - Crawlspace - Slab on Grade - Other
Test Purpose: (Circle all that apply) Initial Screening - Follow Up Test - Post Mitigation - Real Estate - Other
Building Type: (Circle One) Residential - Non Residential Private Day Care - Private School Day Care in Public School - Public School

Both Placed by and Retrieved by signatures are required

Canisters placed by _____ # _____

Canisters retrieved by _____ # _____

Send Results To:

Company Name: KCI Tech
 Address: 936 Ridgebrook
 City: Sparks State: MD Zip: 21152
 Phone: 410-599-3826
 EMAIL Results to: James.Mouldale@kci.com

Were general operating conditions maintained?
 Yes - No explain if NO
 Were closed building conditions maintained?
 Yes - No explain if NO
 Normal Temp. Yes - No
 Normal Humidity Yes - No
 Windy Y-N Rainy Y-N

Make sure information is complete and correct.
 If a recalculation is requested there is a \$10.00 recalc fee PER Canister.

Mailing: PO Box 990 Jonestown, PA 17038
 Shipping: 929 Mt Zion Road, Lebanon, PA 17046
 800-523-4964 fax 717-274-5662
 NEHA 10511AL NRSB ARL 0007

TCS INDUSTRIES, INC.

(717) 657-7032

RADON GAS DETECTION

www.radondetek.com

4326 Crestview Road, Harrisburg, PA 17112

James Mouldale
KCI
936 Ridgebrook Rd.
Sparks, MD 21152

April 04, 2016

Dear Mr. Mouldale:

The spike exposure data were:

Start 04/04/16 @ 1110 hrs EDT
End 04/06/16 @ 1113 hrs EDT

AC 3029218, 3029219, 3029220, 3029217, 3029214, 3029217, and 3029166

Average radon concentration was 10.6 pCi/L +/- 5%

Avg. Temp. was 71F
Avg. RH was 51%
Elevation was 490 feet above sea level

Sincerely,



Carl H. Distenfeld, CHP

TCS Radon Chamber NRSB CHM 0002

NRPP 10511AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested:

KCI Technologies
936 Ridgebrook Rd
Sparks MD 21152

MCPS
Radon Spike Sample Laboratory Results


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3020102	3029166	04/04/2016 11:10 am 04/06/2016 11:13 am	Not Indicated	11.9
3020103	3029214	04/04/2016 11:10 am 04/06/2016 11:13 am	Not Indicated	11.5
3020104	3029217	04/04/2016 11:10 am 04/06/2016 11:13 am	Not Indicated	10.7
3020105	3029218	04/04/2016 11:10 am 04/06/2016 11:13 am	Not Indicated	11.3
3020106	3029219	04/04/2016 11:10 am 04/06/2016 11:13 am	Not Indicated	11.0
3020107	3029220	04/04/2016 11:10 am 04/06/2016 11:13 am	Not Indicated	10.5

Comment: A copy of this report was emailed to james.mouldsdale@kci.com.

Distributed by: KCI Technologies, Inc.

Date Received: 04/07/2016 Date Logged: 04/07/2016 Date Analyzed: 04/07/2016 Date Reported: 04/08/2016

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.

Report Reviewed By: 

Report Approved By: 
Carolyn D. Koke, President, AccuStar Labs

Disclaimer:

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

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


Send Written Report To:

Name: KCI Technologies, Inc
 Address: 936 Ridgebrook Road
 Address:
 City / Town: Sparks
 State/Province Postal Code: MD 21152
 Report Country: Baltimore County
 Email Address: tehsin@kci.com

Site Tested:

Site Name: MCRS
 Address: 850 Hagerford Dr
 Address:
 City / Town: Rockville
 State/Province Postal Code: MD 20850
 Test Country: Montgomery County
 Project Number: 12146341

Contact Information:

Contact: Tehsin Aurangabadwala
 Telephone: 410-891-1726
 Technician:
 Cert. Number:
 Signature: 

Lab Use Only	Device Number	Building Number	Unit Number	Floor	Name of Room	Temp	Start Date mm/dd/yyyy	Start Time hh:mm am / pm	Stop Date mm/dd/yyyy	Stop Time hh:mm am / pm	Lab Use Only
	3029166	1		1	1		4/4/16	11:10am	4/6/16	11:15am	
	3029214	1		1	2						
	3029217	1		1	3						
	3029218	1		1	4						
	3029219	1		1	5						
	3029220	1		1	6						

RADON SCREENING SURVEY – FOLLOW-UP CLOVERLY ES ELEMENTARY SCHOOL

800 Briggs Chaney Rd, Silver Spring, Maryland 20905

EXECUTIVE SUMMARY

Date of Test Report:	3/4/16 Follow-Up
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	5
# Rooms \geq 4.0 pCi/L:	0
Low Value:	1.4
High Value:	2.6
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) 3/10/16 (Rev 1 Initial)	Result (pCi/L) 3/4/16 Follow-Up	Average Result (pCi/L)
Assistant Principal	6.2	2.6	4.4
Principal	4.7	2.1	3.4
Conference	4.3	2.4	3.4
IMU	4.0	1.4	2.7
Main Office	3.2	1.9	2.6
Main Office	3.5	1.6	2.6



MCPS RADON TESTING

Executive Summary: Cloverly Elementary School

Date of Test Report:	3/4/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	5
# Rooms \geq 4.0 pCi/L:	0
Low Value:	1.4
High Value:	2.6

Project Status:

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



March 4, 2016

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

Re: **Radon Testing Services**
KCI Job # 12146341.28

Location: Cloverly Elementary School
800 Briggs Chaney Road
Silver Spring, MD 20905

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 Cloverly Elementary School, located at 800 Briggs Chaney Road in Silver Spring, Maryland 20905 (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 8, 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 11, 2016 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936

Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:
D- Duplicate sample

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

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

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

Sincerely,



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

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank*

PM- Project Manager

QC- Quality Control

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

Radon Testing Results		
Cloverly Elementary School		
Test Period: 02/08/16-02/11/16		
Kit Number	Room / Area	Result
7730162	ASST PRIN	2.6
7730166	CONF ROOM	2.4
7730169	IMU	1.4
7730168	MAIN	1.6
7730167	MAIN	1.9
7730164	PRIN	2.1

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Cloverly Elementary School		
Test Period: 02/08/16-02/11/16		
Kit Number	QC Type	Result
7730163	D (ASST PRIN)	2.3
7730165	FB (PRIN)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

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

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7730162	ASST PRIN	2016-02-08 @ 12:00 pm	2016-02-11 @ 1:00 pm	2.6 ± 0.4	2016-02-15
7730163	ASST PRIN	2016-02-08 @ 12:00 pm	2016-02-11 @ 1:00 pm	2.3 ± 0.4	2016-02-15
7730166	CONF ROOM	2016-02-08 @ 12:00 pm	2016-02-11 @ 1:00 pm	2.4 ± 0.4	2016-02-15
7730169	IMU	2016-02-08 @ 12:00 pm	2016-02-11 @ 1:00 pm	1.4 ± 0.3	2016-02-15
7730167	MAIN	2016-02-08 @ 12:00 pm	2016-02-11 @ 1:00 pm	1.9 ± 0.4	2016-02-15
7730168	MAIN	2016-02-08 @ 12:00 pm	2016-02-11 @ 1:00 pm	1.6 ± 0.3	2016-02-15
7730164	PRIN	2016-02-08 @ 12:00 pm	2016-02-11 @ 1:00 pm	2.1 ± 0.4	2016-02-15
7730165	PRIN	2016-02-08 @ 12:00 pm	2016-02-11 @ 1:00 pm	< 0.3	2016-02-15

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

Radon test result report for:

**MCPS RADON
PHASE 8
OFFICE BLANKS**

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

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

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 μR/h Elevation = 820 ft**



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 8

Name of Schools:

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

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

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



MCPS RADON TESTING

Executive Summary: Cloverly Elementary School

Date of Test Report:	3/10/2016 (Rev 1)
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	48
# Rooms \geq 4.0 pCi/L:	4
Low Value:	< 0.3
High Value:	6.2

Rooms with results \geq 4.0 pCi/L:

Assistant Principal (6.2 pCi/L), Principal (4.7 pCi/L), Conference (4.3 pCi/L), IMU (4.0 pCi/L)

Project Status:

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



March 10, 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: Cloverly Elementary School
800 Briggs Chaney Road
Silver Spring, MD 20905

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 Cloverly Elementary School, located at 800 Briggs Chaney Road in Silver Spring, Maryland 20905 (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-six (66) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

KCI returned to the site on 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
	Principal	4.7, 4.2(D)
	Conference	4.3
	IMU	4.0
< 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		
Cloverly ES		
Test Period: 12/28/15-12/31/15		
Kit Number	Room / Area	Result
7715246	1	1.0
7715245	2	0.6
7715244	3	1.0
7715242	4	< 0.3
7715240	5	< 0.3
7715238	6	< 0.3
7715239	7	< 0.3
7715241	8	0.7
7715243	9	< 0.3
7715249	10	1.3
7715247	11	< 0.3
7715251	12	1.3
7715252	13	1.2
7715253	14	0.8
7715206	15	< 0.3
7715205	16	0.8
7715204	17	< 0.3
7715203	18	< 0.3
7715202	19	0.7
7715201	20	< 0.3
7715221	21	1.2
7715222	22	0.8
7715223	23	< 0.3
7715224	24	< 0.3
7715225	25	< 0.3
7715231	26	< 0.3
7715217	30	1.6
7715216	31	2.4
7715219	32	1.2
7715210	34	1.4
7715208	35	1.2
7715212	36	2.0
7715209	37	2.5
7715236	121	< 0.3
7715235	122	0.9
7715233	123	< 0.3
7715228	125	1.9
7715257	AS. PRN	6.2
7715229	COM	2.6
7715254	CONFEREN	4.3
7715213	GYM	< 0.3
7715214	GYM	0.9
7715226	IMC	2.2
7715227	IMC	1.7
7715207	IMU	4.0
7715258	MAIN	3.5

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Cloverly ES		
Test Period: 12/28/15-12/31/15		
Kit Number	Room / Area	Result
7715263	MPR	0.6
7715264	MPR	< 0.3
7715215	PE OFFICE	1.5
7715255	PRN	4.7
7715261	STAFF	< 0.3

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Cloverly ES		
Test Period: 12/28/15-12/31/15		
Kit Number	QC Type	Result
7715248	D (11)	1.2
7715234	D (123)	0.6
7715220	D (32)	< 0.3
7715211	D (34)	1.1
7715230	D (COM)	2.1
7715259	D (MAIN)	3.2
7715256	D (PRN)	4.2
7715262	D (STAFF)	0.6
7715250	FB (10)	< 0.3
7715237	FB (121)	< 0.3
7715232	FB (26)	< 0.3
7715218	FB (30)	< 0.3
7715260	FB (MAIN)	< 0.3
7715265	FB (MPR)	< 0.3
7710664	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:
**CLOVERLY ES
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7710664	0	2015-12-28 @ 4:00 pm	2015-12-31 @ 12:00 pm	< 0.3	2016-01-04
7715246	1	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	1.0 ± 0.3	2016-01-04
7715249	10	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	1.3 ± 0.4	2016-01-04
7715250	10	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-05
7715248	11	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	1.2 ± 0.4	2016-01-04
7715247	11	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-05
7715251	12	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	1.3 ± 0.4	2016-01-05
7715236	121	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7715237	121	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7715235	122	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	0.9 ± 0.4	2016-01-04
7715234	123	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	0.6 ± 0.3	2016-01-04
7715233	123	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-05
7715228	125	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	1.9 ± 0.4	2016-01-04
7715252	13	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	1.2 ± 0.4	2016-01-04
7715253	14	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	0.8 ± 0.4	2016-01-05
7715206	15	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-05
7715205	16	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	0.8 ± 0.3	2016-01-04
7715204	17	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-05
7715203	18	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-05
7715202	19	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	0.7 ± 0.3	2016-01-04
7715245	2	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	0.6 ± 0.4	2016-01-05
7715201	20	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-05
7715221	21	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	1.2 ± 0.4	2016-01-04
7715222	22	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	0.8 ± 0.4	2016-01-05
7715223	23	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-05
7715224	24	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-05
7715225	25	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7715231	26	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7715232	26	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7715244	3	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	1.0 ± 0.4	2016-01-05
7715217	30	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	1.6 ± 0.4	2016-01-04
7715218	30	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-05
7715216	31	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	2.4 ± 0.5	2016-01-05
7715219	32	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	1.2 ± 0.5	2016-01-05
7715220	32	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-05
7715210	34	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	1.4 ± 0.4	2016-01-04
7715211	34	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	1.1 ± 0.3	2016-01-04

January 16, 2016
**LABORATORY ANALYSIS
REPORT**

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7715208	35	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	1.2 ± 0.3	2016-01-04
7715212	36	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	2.0 ± 0.4	2016-01-04
7715209	37	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	2.5 ± 0.4	2016-01-04
7715242	4	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7715240	5	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7715238	6	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7715239	7	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-05
7715241	8	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	0.7 ± 0.4	2016-01-04
7715243	9	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7715257	AS. PRN	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	6.2 ± 0.7	2016-01-05
7715229	COM	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	2.6 ± 0.4	2016-01-04
7715230	COM	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	2.1 ± 0.4	2016-01-04
7715254	CONFEREN	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	4.3 ± 0.6	2016-01-05
7715213	GYM	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7715214	GYM	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	0.9 ± 0.3	2016-01-04
7715226	IMC	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	2.2 ± 0.4	2016-01-04
7715207	IMU	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	4.0 ± 0.6	2016-01-05
7715227	IMC	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	1.7 ± 0.4	2016-01-05
7715259	MAIN	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	3.2 ± 0.5	2016-01-04
7715258	MAIN	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	3.5 ± 0.6	2016-01-05
7715260	MAIN	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-05
7715264	MPR	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7715265	MPR	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7715263	MPR	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	0.6 ± 0.4	2016-01-05
7715215	PE OFFICE	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	1.5 ± 0.5	2016-01-05
7715255	PRN	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	4.7 ± 0.6	2016-01-04
7715256	PRN	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	4.2 ± 0.6	2016-01-05
7715262	STAFF	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	0.6 ± 0.3	2016-01-04
7715261	STAFF	2015-12-28 @ 3:00 pm	2015-12-31 @ 10:00 am	< 0.3	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