



MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	Wootton High School
Date of Test Report	05/12/2022
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	5
# Rooms \geq 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	<0.3 pCi/L

Project Status

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



May 12, 2022

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

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

Location: Wootton High School
2100 Wootton Parkway
Rockville, MD 20850

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 Wootton High School, located at 2100 Wootton Parkway, Rockville, MD 20850 (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 22, 2022 and deployed seven (7) 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 March 25, 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 50°Fs to the low 70°Fs. Maximum sustained winds ranged from 0-29 miles per hour. Average humidity was around 56% with 0.51 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		
Wootton HS RT		
Test Period: 03/22/2022 - 03/25/2022		
Kit Number	Room / Area	Result
11131733	107	< 0.3
11131726	109	< 0.3
11131715	112	< 0.3
11131751	149	< 0.3
11131734	100B	< 0.3
11131747	100B	< 0.3
11131759	100B	< 0.3

Table 2- Radon Testing Results			
Wootton HS RT			
Test Period: 03/22/2022 - 03/25/2022			
Kit Number	QC Type	Room / Area	Result
11131747	D	100b	< 0.3
11131759	FB	100b	< 0.3
11139902	OB	OFFICE BLANK	< 0.3
11139928	TB	TRAVEL BLANK	< 0.3

ATTACHMENT C

Laboratory Analytical Results

March 28, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
WOOTTON HS

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11131734	100B	2022-03-22 @ 2:00 pm	2022-03-25 @ 12:00 pm	< 0.3	2022-03-28
11131747	100B	2022-03-22 @ 2:00 pm	2022-03-25 @ 12:00 pm	< 0.3	2022-03-28
11131759	100B	2022-03-22 @ 2:00 pm	2022-03-25 @ 12:00 pm	< 0.3	2022-03-28
11131733	107	2022-03-22 @ 2:00 pm	2022-03-25 @ 12:00 pm	< 0.3	2022-03-28
11131726	109	2022-03-22 @ 2:00 pm	2022-03-25 @ 12:00 pm	< 0.3	2022-03-28
11131715	112	2022-03-22 @ 2:00 pm	2022-03-25 @ 12:00 pm	< 0.3	2022-03-28
11131751	149	2022-03-22 @ 2:00 pm	2022-03-25 @ 12:00 pm	< 0.3	2022-03-28

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon – March 2022 Schools – Retesting

Name of Schools:

1. Herbert Hoover MS
2. Parkland MS
3. Redland MS
4. Rock Creek Valley ES
5. Tilden MS
6. Rockville HS
7. Wootton HS
8. Capt. James E. Daly ES
9. Clarksburg HS
10. Clearspring ES
11. Hallie Wells MS
12. Northwest HS
13. Paint Branch HS
14. Rocky Hills MS
15. Seneca Valley HS
16. Sherwood HS
17. Wilson Wims ES

	Date	Initials
Radon Test Kits Deployed	03/22/2022	BMM
Radon Test Kits Collected	03/25/2022	BMM
Radon Test Kits Shipped to Lab*	03/25/2022	BMM
Radon Test Kits Received by Lab*	03/28/2022	BMM

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

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



MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	Wootton High School
Date of Test Report	4/6/2022
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	104
# Rooms ≥ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.5 pCi/L

Project Status:

Initial testing completed; Missing or compromised kits need re-sampling.



April 6, 2022

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

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

Location: Wootton HS
2100 Wootton Parkway
Rockville, MD 20850

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 Wootton HS, located at 2100 Wootton Parkway Rockville, MD 20850 (subject site).

Scope of Services:

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

KCI visited the site on February 7, 2022 and deployed one hundred and twenty two (122) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

KCI returned to the site on February 10, 2022 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc.

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

Evaluation of Testing Conditions:

These tests represent:

- Follow-up to post-mitigation biennial testing.

These tests were conducted to:

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

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the 30s and high temperatures ranged from the mid 30s to the mid 50s Fahrenheit. Maximum sustained winds ranged from 3-12 miles per hour. Average humidity was around 23% with 0.1 inches of precipitation (rain) was recorded during testing period.

Results:

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

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 pCi/L	None	N/A
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Quality Control Samples	
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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.

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ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

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KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

OC- Quality Control

Table 1- Radon Testing Results		
Wootton HS		
Test Period: 02/7/2022 - 02/10/2022		
Kit Number	Room / Area	Result
11113901	268	< 0.3
11113902	211	< 0.3
11113903	181	< 0.3
11113904	206	< 0.3
11113905	282	< 0.3
11113906	250	< 0.3
11113907	185A	0.7
11113908	290	< 0.3
11113909	19	1.0
11113910	110	< 0.3
11113911	221	< 0.3
11113912	231	< 0.3
11113913	248	< 0.3
11113914	279	< 0.3
11113915	CAFETERIA	0.6
11113916	13B	< 0.3
11113917	290	< 0.3
11113918	13B	< 0.3
11113919	GYM	< 0.3
11113921	118	< 0.3
11113922	174	< 0.3
11113923	148	0.8
11113924	CAFETERIA	< 0.3
11113925	124	< 0.3
11113926	290	< 0.3
11113928	13B	< 0.3
11113929	118A	< 0.3
11113930	GYM	0.6
11113931	15	0.5
11113932	13	0.9
11113933	106	< 0.3
11113934	125	1.0
11113935	113	< 0.3
11113936	108	< 0.3
11113938	RECEIVING	0.7
11113939	WEIGHT ROOM	1.0
11113940	111	< 0.3
11113941	125	< 0.3
11113942	123	< 0.3
11113945	105	< 0.3
11113948	125	0.7
11114002	150	< 0.3

Table 1- Radon Testing Results		
Wootton HS		
Test Period: 02/7/2022 - 02/10/2022		
Kit Number	Room / Area	Result
11114003	168	< 0.3
11114004	151	< 0.3
11114005	168	0.7
11114006	169	< 0.3
11114007	168	< 0.3
11114008	180	0.6
11114010	153	< 0.3
11114011	154	0.5
11114012	155	< 0.3
11114014	152	< 0.3
11114301	146	1.6
11114302	131	< 0.3
11114303	130A	< 0.3
11114304	130	< 0.3
11114305	173	< 0.3
11114306	181	0.7
11114307	148	< 0.3
11114308	160	< 0.3
11114309	130A	< 0.3
11114310	130	< 0.3
11114311	180	< 0.3
11114312	147	1.1
11114313	175	< 0.3
11114314	182	0.5
11114315	161	< 0.3
11114316	166	0.8
11114317	141	0.6
11114318	163	0.7
11114319	186	0.7
11114320	AUDITORIUM	< 0.3
11114322	183	1.5
11114323	167	< 0.3
11114324	174	< 0.3
11114325	146	1.1
11114326	144	< 0.3
11114327	189C	4.8
11114328	AUDITORIUM	< 0.3
11114329	185B	< 0.3
11114330	189	0.8
11114331	189B	1.2
11114332	ART OFFICE	< 0.3
11114333	143	0.9

Table 1- Radon Testing Results		
Wootton HS		
Test Period: 02/7/2022 - 02/10/2022		
Kit Number	Room / Area	Result
11114334	142	< 0.3
11114335	TV STUDIO	< 0.3
11114336	185A	< 0.3
11114337	103E	< 0.3
11114338	103K	< 0.3
11114339	188	< 0.3
11114340	102E	< 0.3
11114341	186B	0.9
11114342	162	0.6
11114343	103E	< 0.3
11114344	103L	< 0.3
11114345	103E	< 0.3
11114346	187	0.7
11114347	102B	< 0.3
11114348	102	< 0.3
11114349	184	0.8
11114350	103J	< 0.3
11114351	101	< 0.3
11114352	103C	< 0.3
11114353	103G	0.7
11114354	103D	< 0.3
11114355	103F	< 0.3
11114357	103I	< 0.3
11114358	100M	0.5
11114359	AUDITORIUM	< 0.3
11114360	KURTZ	< 0.3
11114361	104A	0.7
11114362	104	< 0.3
11114364	100E	< 0.3
11114365	104	< 0.3
11114366	100I	< 0.3
11114367	100G	< 0.3
11114368	100H	0.9
11114369	100C	< 0.3
11114370	MAIN OFFICE	0.6
11114371	100D	< 0.3
11114372	MAIN OFFICE	< 0.3
11114373	OFFICE	< 0.3

Table 2- Radon Testing Results			
Wootton HS			
Test Period: 02/7/2022 - 02/10/2022			
Kit Number	QC Type	Room / Area	Result
11114373	FB	Main office	< 0.3
11114370	D	Main office	0.6
11114362	D	104	< 0.3
11114343	FB	103E	< 0.3
11114337	D	103E	< 0.3
11114328	FB	Auditorium	< 0.3
11114320	D	Auditorium	< 0.3
11114303	D	130A	< 0.3
11114309	FB	130A	< 0.3
11114003	FB	168	< 0.3
11114007	D	168	< 0.3
11113926	FB	290	< 0.3
11113907	D	185A	0.7
11113922	D	174	< 0.3
11113923	D	148	0.8
11113919	D	Gym	< 0.3
11113924	D	Cafeteria	< 0.3
11113916	FB	13B	< 0.3
11113928	D	13B	< 0.3
11113948	D	125	0.7
11113941	FB	125	< 0.3
11113481	OB	OFFICE BLANK	< 0.3
11113483	TB	TRAVEL BLANK	< 0.3

ATTACHMENT C

Laboratory Analytical Results

February 15, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11113935	113	2022-02-07 @ 6:00 pm	2022-02-10 @ 2:00 pm	< 0.3	2022-02-14
11113929	118A	2022-02-07 @ 6:00 pm	2022-02-10 @ 2:00 pm	< 0.3	2022-02-14
11114372	MAIN OFFICE	2022-02-07 @ 10:00 am	2022-02-10 @ 12:00 pm	< 0.3	2022-02-14

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

Radon test result report for:
WOOTON HS

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11114369	100C	2022-02-07 @ 10:00 am	2022-02-10 @ 1:00 pm	< 0.3	2022-02-14
11114351	101	2022-02-07 @ 12:00 pm	2022-02-10 @ 6:00 pm	< 0.3	2022-02-14
11114348	102	2022-02-07 @ 12:00 pm	2022-02-10 @ 2:00 pm	< 0.3	2022-02-14
11114347	102B	2022-02-07 @ 12:00 pm	2022-02-10 @ 2:00 pm	< 0.3	2022-02-14
11114340	102E	2022-02-07 @ 12:00 pm	2022-02-10 @ 2:00 pm	< 0.3	2022-02-14
11114352	103C	2022-02-07 @ 11:00 am	2022-02-10 @ 2:00 pm	< 0.3	2022-02-14
11114354	103D	2022-02-07 @ 11:00 am	2022-02-10 @ 2:00 pm	< 0.3	2022-02-14
11114337	103E	2022-02-07 @ 12:00 pm	2022-02-10 @ 2:00 pm	< 0.3	2022-02-14
11114343	103E	2022-02-07 @ 12:00 pm	2022-02-10 @ 2:00 pm	< 0.3	2022-02-14
11114345	103E	2022-02-07 @ 11:00 am	2022-02-10 @ 1:00 pm	< 0.3	2022-02-14
11114355	103F	2022-02-07 @ 11:00 am	2022-02-10 @ 2:00 pm	< 0.3	2022-02-14
11114353	103G	2022-02-07 @ 11:00 am	2022-02-10 @ 2:00 pm	0.7 ± 0.3	2022-02-14
11114357	103I	2022-02-07 @ 12:00 pm	2022-02-10 @ 1:00 pm	< 0.3	2022-02-14
11114350	103J	2022-02-07 @ 12:00 pm	2022-02-10 @ 1:00 pm	< 0.3	2022-02-14
11114338	103K	2022-02-07 @ 12:00 pm	2022-02-10 @ 1:00 pm	< 0.3	2022-02-14
11114344	103L	2022-02-07 @ 12:00 pm	2022-02-10 @ 1:00 pm	< 0.3	2022-02-14
11114365	104	2022-02-07 @ 11:00 am	2022-02-10 @ 1:00 pm	< 0.3	2022-02-14
11114362	104	2022-02-07 @ 11:00 am	2022-02-10 @ 1:00 pm	< 0.3	2022-02-14
11114361	104A	2022-02-07 @ 11:00 am	2022-02-10 @ 2:00 pm	0.7 ± 0.3	2022-02-14
11113945	105	2022-02-07 @ 6:00 pm	2022-02-10 @ 2:00 pm	< 0.3	2022-02-14
11113933	106	2022-02-07 @ 6:00 pm	2022-02-10 @ 2:00 pm	< 0.3	2022-02-14
11113936	108	2022-02-07 @ 6:00 pm	2022-02-10 @ 3:00 pm	< 0.3	2022-02-14
11113910	110	2022-02-07 @ 6:00 pm	2022-02-10 @ 3:00 pm	< 0.3	2022-02-14
11113940	111	2022-02-07 @ 6:00 pm	2022-02-10 @ 2:00 pm	< 0.3	2022-02-14
11113921	118	2022-02-07 @ 6:00 pm	2022-02-10 @ 2:00 pm	< 0.3	2022-02-14
11113942	123	2022-02-07 @ 6:00 pm	2022-02-10 @ 3:00 pm	< 0.3	2022-02-14
11113925	124	2022-02-07 @ 6:00 pm	2022-02-10 @ 3:00 pm	< 0.3	2022-02-14
11113934	125	2022-02-07 @ 6:00 pm	2022-02-10 @ 3:00 pm	1.0 ± 0.3	2022-02-14
11113948	125	2022-02-07 @ 6:00 pm	2022-02-10 @ 3:00 pm	0.7 ± 0.3	2022-02-14
11113941	125	2022-02-07 @ 6:00 pm	2022-02-10 @ 3:00 pm	< 0.3	2022-02-14
11113932	13	2022-02-07 @ 5:00 pm	2022-02-10 @ 5:00 pm	0.9 ± 0.3	2022-02-14
11114304	130	2022-02-07 @ 2:00 pm	2022-02-10 @ 4:00 pm	< 0.3	2022-02-14
11114310	130	2022-02-07 @ 2:00 pm	2022-02-10 @ 4:00 pm	< 0.3	2022-02-14
11114309	130A	2022-02-07 @ 2:00 pm	2022-02-10 @ 4:00 pm	< 0.3	2022-02-14
11114303	130A	2022-02-07 @ 2:00 pm	2022-02-10 @ 5:00 pm	< 0.3	2022-02-14
11114302	131	2022-02-07 @ 2:00 pm	2022-02-10 @ 4:00 pm	< 0.3	2022-02-14
11113916	13B	2022-02-07 @ 5:00 pm	2022-02-10 @ 5:00 pm	< 0.3	2022-02-14

Radon test result report for:
WOOTON HS

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11113918	13B	2022-02-07 @ 5:00 pm	2022-02-10 @ 5:00 pm	< 0.3	2022-02-14
11113928	13B	2022-02-07 @ 5:00 pm	2022-02-10 @ 5:00 pm	< 0.3	2022-02-14
11114317	141	2022-02-07 @ 2:00 pm	2022-02-10 @ 3:00 pm	0.6 ± 0.3	2022-02-14
11114334	142	2022-02-07 @ 2:00 pm	2022-02-10 @ 3:00 pm	< 0.3	2022-02-14
11114333	143	2022-02-07 @ 2:00 pm	2022-02-10 @ 3:00 pm	0.9 ± 0.3	2022-02-14
11114326	144	2022-02-07 @ 2:00 pm	2022-02-10 @ 3:00 pm	< 0.3	2022-02-14
11114301	146	2022-02-07 @ 2:00 pm	2022-02-10 @ 3:00 pm	1.6 ± 0.3	2022-02-14
11114325	146	2022-02-07 @ 2:00 pm	2022-02-10 @ 3:00 pm	1.1 ± 0.3	2022-02-14
11114312	147	2022-02-07 @ 2:00 pm	2022-02-10 @ 3:00 pm	1.1 ± 0.3	2022-02-14
11114307	148	2022-02-07 @ 2:00 pm	2022-02-10 @ 3:00 pm	< 0.3	2022-02-14
11113923	148	2022-02-07 @ 5:00 pm	2022-02-10 @ 3:00 pm	0.8 ± 0.3	2022-02-14
11113931	15	2022-02-07 @ 5:00 pm	2022-02-10 @ 5:00 pm	0.5 ± 0.3	2022-02-14
11114002	150	2022-02-07 @ 3:00 pm	2022-02-10 @ 3:00 pm	< 0.3	2022-02-14
11114004	151	2022-02-07 @ 3:00 pm	2022-02-10 @ 3:00 pm	< 0.3	2022-02-14
11114014	152	2022-02-07 @ 3:00 pm	2022-02-10 @ 3:00 pm	< 0.3	2022-02-14
11114010	153	2022-02-07 @ 3:00 pm	2022-02-10 @ 4:00 pm	< 0.3	2022-02-14
11114011	154	2022-02-07 @ 3:00 pm	2022-02-10 @ 3:00 pm	0.5 ± 0.3	2022-02-14
11114012	155	2022-02-07 @ 3:00 pm	2022-02-10 @ 3:00 pm	< 0.3	2022-02-14
11114308	160	2022-02-07 @ 2:00 pm	2022-02-10 @ 3:00 pm	< 0.3	2022-02-14
11114315	161	2022-02-07 @ 2:00 pm	2022-02-10 @ 3:00 pm	< 0.3	2022-02-14
11114342	162	2022-02-07 @ 2:00 pm	2022-02-10 @ 3:00 pm	0.6 ± 0.3	2022-02-14
11114318	163	2022-02-07 @ 2:00 pm	2022-02-10 @ 5:00 pm	0.7 ± 0.3	2022-02-14
11114316	166	2022-02-07 @ 1:00 pm	2022-02-10 @ 3:00 pm	0.8 ± 0.3	2022-02-14
11114323	167	2022-02-07 @ 1:00 pm	2022-02-10 @ 3:00 pm	< 0.3	2022-02-14
11114007	168	2022-02-07 @ 3:00 pm	2022-02-10 @ 3:00 pm	< 0.3	2022-02-14
11114005	168	2022-02-07 @ 3:00 pm	2022-02-10 @ 3:00 pm	0.7 ± 0.3	2022-02-14
11114003	168	2022-02-07 @ 3:00 pm	2022-02-10 @ 3:00 pm	< 0.3	2022-02-14
11114006	169	2022-02-07 @ 3:00 pm	2022-02-10 @ 3:00 pm	< 0.3	2022-02-14
11114305	173	2022-02-07 @ 2:00 pm	2022-02-10 @ 4:00 pm	< 0.3	2022-02-14
11114324	174	2022-02-07 @ 1:00 pm	2022-02-10 @ 4:00 pm	< 0.3	2022-02-14
11113922	174	2022-02-07 @ 5:00 pm	2022-02-10 @ 5:00 pm	< 0.3	2022-02-14
11114313	175	2022-02-07 @ 1:00 pm	2022-02-10 @ 3:00 pm	< 0.3	2022-02-14
11114008	180	2022-02-07 @ 3:00 pm	2022-02-10 @ 4:00 pm	0.6 ± 0.3	2022-02-14
11114311	180	2022-02-07 @ 1:00 pm	2022-02-10 @ 4:00 pm	< 0.3	2022-02-14
11113903	181	2022-02-07 @ 3:00 pm	2022-02-10 @ 6:00 pm	< 0.3	2022-02-14
11114306	181	2022-02-07 @ 1:00 pm	2022-02-10 @ 4:00 pm	0.7 ± 0.3	2022-02-14
11114314	182	2022-02-07 @ 1:00 pm	2022-02-10 @ 4:00 pm	0.5 ± 0.3	2022-02-14

Radon test result report for:
WOOTON HS

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11114322	183	2022-02-07 @ 1:00 pm	2022-02-10 @ 4:00 pm	1.5 ± 0.3	2022-02-14
11114349	184	2022-02-07 @ 1:00 pm	2022-02-10 @ 4:00 pm	0.8 ± 0.3	2022-02-14
11113907	185A	2022-02-07 @ 4:00 pm	2022-02-10 @ 4:00 pm	0.7 ± 0.3	2022-02-14
11114336	185A	2022-02-07 @ 12:00 pm	2022-02-10 @ 2:00 pm	< 0.3	2022-02-14
11114329	185B	2022-02-07 @ 12:00 pm	2022-02-10 @ 2:00 pm	< 0.3	2022-02-14
11114319	186	2022-02-07 @ 1:00 pm	2022-02-10 @ 5:00 pm	0.7 ± 0.3	2022-02-14
11114341	186B	2022-02-07 @ 1:00 pm	2022-02-10 @ 5:00 pm	0.9 ± 0.3	2022-02-14
11114346	187	2022-02-07 @ 1:00 pm	2022-02-10 @ 4:00 pm	0.7 ± 0.3	2022-02-14
11114339	188	2022-02-07 @ 12:00 pm	2022-02-10 @ 5:00 pm	< 0.3	2022-02-14
11114330	189	2022-02-07 @ 12:00 pm	2022-02-10 @ 4:00 pm	0.8 ± 0.3	2022-02-14
11114331	189B	2022-02-07 @ 12:00 pm	2022-02-10 @ 4:00 pm	1.2 ± 0.3	2022-02-14
11114327	189C	2022-02-07 @ 12:00 pm	2022-02-10 @ 4:00 pm	4.8 ± 0.4	2022-02-14
11113909	19	2022-02-07 @ 5:00 pm	2022-02-10 @ 5:00 pm	1.0 ± 0.3	2022-02-14
11113904	206	2022-02-07 @ 3:00 pm	2022-02-10 @ 6:00 pm	< 0.3	2022-02-14
11113902	211	2022-02-07 @ 4:00 pm	2022-02-10 @ 6:00 pm	< 0.3	2022-02-14
11113911	221	2022-02-07 @ 4:00 pm	2022-02-10 @ 6:00 pm	< 0.3	2022-02-14
11113912	231	2022-02-07 @ 4:00 pm	2022-02-10 @ 6:00 pm	< 0.3	2022-02-14
11113913	248	2022-02-07 @ 4:00 pm	2022-02-10 @ 6:00 pm	< 0.3	2022-02-14
11113906	250	2022-02-07 @ 4:00 pm	2022-02-10 @ 6:00 pm	< 0.3	2022-02-14
11113901	268	2022-02-07 @ 4:00 pm	2022-02-10 @ 6:00 pm	< 0.3	2022-02-14
11113914	279	2022-02-07 @ 4:00 pm	2022-02-10 @ 6:00 pm	< 0.3	2022-02-14
11113905	282	2022-02-07 @ 4:00 pm	2022-02-10 @ 6:00 pm	< 0.3	2022-02-14
11113908	290	2022-02-07 @ 4:00 pm	2022-02-10 @ 6:00 pm	< 0.3	2022-02-14
11113926	290	2022-02-07 @ 4:00 pm	2022-02-10 @ 6:00 pm	< 0.3	2022-02-14
11113917	290	2022-02-07 @ 4:00 pm	2022-02-10 @ 6:00 pm	< 0.3	2022-02-14
11114332	ART OFFICE	2022-02-07 @ 12:00 pm	2022-02-10 @ 4:00 pm	< 0.3	2022-02-14
11114320	AUDITORIUM	2022-02-07 @ 1:00 pm	2022-02-10 @ 4:00 pm	< 0.3	2022-02-14
11114328	AUDITORIUM	2022-02-07 @ 1:00 pm	2022-02-10 @ 4:00 pm	< 0.3	2022-02-14
11114359	AUDITORIUM	2022-02-07 @ 1:00 pm	2022-02-10 @ 4:00 pm	< 0.3	2022-02-14
11113915	CAFETERIA	2022-02-07 @ 5:00 pm	2022-02-10 @ 5:00 pm	0.6 ± 0.3	2022-02-14
11113924	CAFETERIA	2022-02-07 @ 5:00 pm	2022-02-10 @ 5:00 pm	< 0.3	2022-02-14
11113919	GYM	2022-02-07 @ 5:00 pm	2022-02-10 @ 3:00 pm	< 0.3	2022-02-14
11113930	GYM	2022-02-07 @ 5:00 pm	2022-02-10 @ 3:00 pm	0.6 ± 0.3	2022-02-14
11114360	KURTZ	2022-02-07 @ 11:00 am	2022-02-10 @ 2:00 pm	< 0.3	2022-02-14
11114370	MAIN OFFICE	2022-02-07 @ 10:00 am	2022-02-10 @ 12:00 pm	0.6 ± 0.3	2022-02-14
11114373	OFFICE	2022-02-07 @ 10:00 am	2022-02-10 @ 12:00 pm	< 0.3	2022-02-14
11113938	RECEIVING	2022-02-07 @ 5:00 pm	2022-02-10 @ 5:00 pm	0.7 ± 0.3	2022-02-14

February 15, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
WOOTON HS

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11114335	TV STUDIO	2022-02-07 @ 12:00 pm	2022-02-10 @ 5:00 pm	< 0.3	2022-02-14
11113939	WEIGHT ROOM	2022-02-07 @ 5:00 pm	2022-02-10 @ 5:00 pm	1.0 ± 0.3	2022-02-14

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

February 15, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**WOOTON HS
OFFICE**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11114371	100D	2022-02-07 @ 10:00 am	2022-02-10 @ 1:00 pm	< 0.3	2022-02-14
11114364	100E	2022-02-07 @ 11:00 am	2022-02-11 @ 1:00 pm	< 0.3	2022-02-14
11114367	100G	2022-02-07 @ 11:00 am	2022-02-10 @ 1:00 pm	< 0.3	2022-02-14
11114368	100H	2022-02-07 @ 11:00 am	2022-02-10 @ 1:00 pm	0.9 ± 0.3	2022-02-14
11114366	100I	2022-02-07 @ 11:00 am	2022-02-10 @ 1:00 pm	< 0.3	2022-02-14
11114358	100M	2022-02-07 @ 11:00 am	2022-02-10 @ 1:00 pm	0.5 ± 0.3	2022-02-14

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

February 15, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
WOOTON HS
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11114009	156	2022-02-08 @ 9:00 am	2022-02-11 @ 12:00 pm	< 0.3	2022-02-14

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 204186

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

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

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

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

23 Right

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

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

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

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

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

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

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

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

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon – February 2022 Schools

Name of Schools:

1. Lincoln Center
2. Wootton HS
3. Rockville HS
4. Richard Montgomery HS
5. Rocking Horse Rd. Center
6. Blair G. Ewing Center
7. Twinbrook ES
8. Rock Creek Valley ES
9. Luxmanor ES
10. Tilden MS

	Date	Initials
Radon Test Kits Deployed	02/07/2022	
Radon Test Kits Collected	02/10/2022	
Radon Test Kits Shipped to Lab*	02/10/2022	
Radon Test Kits Received by Lab*	02/14/2022	

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



MONTGOMERY COUNTY PUBLIC SCHOOLS RADON TESTING

Executive Summary:
Thomas S. Wootton High School
2100 Wootton Parkway,
Rockville, MD 20850

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:	4
# of Rooms \geq 4.0 pCi/L:	0
Low Value:	<0.4
High Value:	0.5

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: Thomas S. Wootton High School
2100 Wootton Parkway,
Rockville, MD 20850

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 Thomas S. Wootton High School, located at 2100 Wootton Parkway, Rockville, MD 20850 (subject site).

Scope of Services:

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

PSI visited the site on February 26, 2019 and deployed four (4) activated charcoal (AC) radon test kit. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on March 1, 2019 to retrieve the radon sampling test kit. A floor plan map of the building with the test location is included as Attachment A of this report.

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

Evaluation of Testing Conditions:

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

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



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

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:
D -Duplicate Sample

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

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

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



Respectfully Submitted,

INTERTEK-PSI

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

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

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

ATTACHMENT B

Radon Test Summary Spreadsheet

Radon Testing Results		
Wootton High School		
Testing period: 2/26/19 - 3/1/19		
Kit Number	Room / Area	Result (pCi/L)
3923506	100M	0.5
3923507	100L	0.5
3923508	Concession Stand	< 0.4
3923509	Ticket Booth	< 0.4

Table Notes:

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control

ATTACHMENT C

Laboratory Analytical Results

NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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

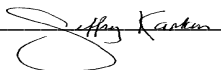
MCPS Radon Survey Wootton High School
2100 Wootton Pkwy
Rockville MD 20850


Log Number	Device Number	Test	Exposure	Duration:	Area Tested	Result pCi/L
3220650	3923506	02/26/2019	9:15 am	03/01/2019 9:00 am	First Floor Room 100M	0.5
3220651	3923507	02/26/2019	9:16 am	03/01/2019 9:00 am	First Floor Room 100I	0.5
3220652	3923508	02/26/2019	9:23 am	03/01/2019 9:07 am	First Floor Room Concession stand	< 0.4
3220653	3923509	02/26/2019	9:25 am	03/01/2019 9:08 am	First Floor Room Ticket Booth	< 0.4

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

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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



MONTGOMERY COUNTY PUBLIC SCHOOLS RADON TESTING

Executive Summary:
Thomas S. Wootton High School
2100 Wootton Parkway,
Rockville, MD 20850

Date of Test Report:	1/9/2019
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:	112
# of Rooms ≥ 4.0 pCi/L:	0
Low Value:	< 0.4
High Value:	1.8

Project Status

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



January 8, 2019

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

Re: Radon Testing Services

Location: Thomas S. Wootton High School
2100 Wootton Parkway,
Rockville, MD 20850

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 Thomas S. Wootton High School, located at 2100 Wootton Parkway, Rockville, MD 20850 (subject site).

Scope of Services:

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

PSI visited the site on December 3, 2018 and deployed one hundred and thirty-three (133) activated charcoal (AC) radon test kits. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on December 6, 2018 to retrieve the radon sampling test kits. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

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



Evaluation of Testing Conditions:

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:

D -Duplicate Sample

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

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

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



Respectfully Submitted,

INTERTEK-PSI

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		
Wootton High School		
Testing period: 12/3/18 - 12/7/18		
Kit Number	Room / Area	Result (pCi/L)
3922821	5	0.4
3888449	5	0.5
3922826	13	<0.4
3922825	15	<0.4
3922824	16	<0.4
3922830	18	<0.4
3922711	19	<0.4
3922718	24	0.4
3922717	27	1.0
3922723	41	<0.4
3922726	42	<0.4
3922730	43	1.8
3922703	100	0.4
3922674	103	<0.4
3922672	104	<0.4
3922668	108	<0.4
3922670	110	<0.4
3922734	130	<0.4
3922733	131	<0.4
3922735	138	<0.4
3919113	141	<0.4
3922731	147	1.1
3922732	148	0.6
3922736	149	0.4
3922737	150	<0.4
3922738	151	0.4
3922740	152	0.9
3922741	153	0.9
3922742	154	<0.4
3922743	155	<0.4
3922744	156	<0.4
3922745	160	<0.4
3922747	161	<0.4
3922748	162	<0.4
3922751	163	0.6
3922750	166	0.4
3922746	167	<0.4
3922757	168	<0.4
3922758	169	<0.4
3922753	173	<0.4
3922754	174	<0.4
3922755	175	<0.4
3922756	176	<0.4

Radon Testing Results		
Wootton High School		
Testing period: 12/3/18 - 12/7/18		
Kit Number	Room / Area	Result (pCi/L)
3922762	180	<0.4
3922761	181	<0.4
3922763	182	0.4
3922764	183	0.8
3922765	184	<0.4
3922768	186	0.4
3922770	187	0.4
3922691	188	<0.4
3922692	189	0.6
3922695	193	<0.4
3922696	193	0.4
3919118	207	<0.4
3919120	209	<0.4
3919114	243	<0.4
3919115	249	<0.4
3919116	255	<0.4
3919117	285	<0.4
3922704	100A	<0.4
3922705	100B	0.6
3922706	100C	<0.4
3922707	100D	<0.4
3922710	100G	1.2
3922671	100H	<0.4
--	100I (INACCESSIBLE)	--
--	100M (INACCESSIBLE)	--
3922820	101 (Office)	<0.4
3922663	102B	<0.4
3922664	102E	<0.4
3922666	102G	<0.4
3922667	102H	<0.4
3922680	103 (Office 1)	<0.4
3922813	103 (Office 2)	<0.4
3922676	103C	<0.4
3922678	103D	<0.4
3922677	103E	<0.4
3922675	103F	<0.4
3922811	103G	<0.4
3922812	103H	<0.4
3922814	103I	<0.4
3922815	103J	<0.4
3922816	103K	<0.4
3922817	103L	<0.4
3922818	103L	<0.4

Radon Testing Results		
Wootton High School		
Testing period: 12/3/18 - 12/7/18		
Kit Number	Room / Area	Result (pCi/L)
3922673	104A	<0.4
3922752	130B	0.4
3922828	13A	<0.4
3922712	13B	<0.4
3922827	13C	<0.4
3922760	169A	0.7
3922766	185A	<0.4
3922767	185B	0.9
3922693	189A	0.5
3922694	189C	1.8
3922697	193I	0.5
3922702	193T	0.4
3922701	193U	0.5
3922713	20A	0.4
3922714	21A	1.4
3922720	27 (Storage)	<0.4
3922724	41A	<0.4
3922725	41B	<0.4
3922727	42A	<0.4
3922728	42B	<0.4
3922823	5C	<0.4
--	Concession Stand (INACCESSIBLE)	--
3922708	Conference Room	<0.4
3922715	Girl's Locker Room Lounge	1.0
3922822	Kitchen	<0.4
3922721	Lower Gym	<0.4
3922722	Lower Gym	<0.4
3922700	Make Up Room	0.5
3922661	Media Center	<0.4
3922662	Media Center	<0.4

Radon Testing Results		
Wooton High School		
Testing period: 12/3/18 - 12/7/18		
Kit Number	QC Type	Result (pCi/L)
3922829	18 (D)	<0.4
3922719	27 Storage (D)	<0.4
3922729	42B (D)	<0.4
3922819	101 (D)	<0.4
3922679	103D (D)	<0.4
3922669	108 (D)	<0.4
3922739	152 (D)	1.0
3922749	166 (D)	0.4
3922759	169 (D)	<0.4
3922769	186 (D)	0.4
3919119	209 (D)	<0.4
3922709	Conference Room (D)	<0.4
3922699	Stage Office 1 (D)	1.1
3923173	Field Blank	<0.4
3923174	Field Blank	<0.4
3922992	Office Blank	<0.4
3922991	Trip Blank	<0.4

Table Notes:

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control

ATTACHMENT C

Laboratory Analytical Results

NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey
Wooton High School
Maryland 20850 USA


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2391562	3922708	12/03/2018 4:49 pm 12/06/2018 12:03 pm	Bldg Wooton High School Flr 1 Rm 100 Conferen	< 0.4
2403463	3922821	12/03/2018 3:02 pm 12/06/2018 12:10 pm	Bldg Wooton High School Flr Lower Level Rm 5	0.4
2403465	3922822	12/03/2018 3:07 pm 12/06/2018 12:09 pm	Bldg Wooton High School Flr Lower Level Rm Kit	< 0.4
2403466	3922823	12/03/2018 3:07 pm 12/06/2018 12:10 pm	Bldg Wooton High School Flr Lower Level Rm 5C	< 0.4
2403467	3922824	12/03/2018 3:09 pm 12/06/2018 12:11 pm	Bldg Wooton High School Flr Lower Level Rm 16	< 0.4
2403468	3922825	12/03/2018 3:10 pm 12/06/2018 12:12 pm	Bldg Wooton High School Flr Lower Level Rm 15	< 0.4
2403469	3922826	12/03/2018 3:11 pm 12/06/2018 1:13 pm	Bldg Wooton High School Flr Lower Level Rm 13	< 0.4
2403470	3922827	12/03/2018 3:14 pm 12/06/2018 12:14 pm	Bldg Wooton High School Flr Lower Level Rm 13	< 0.4
2403471	3922828	12/03/2018 3:15 pm 12/06/2018 12:14 pm	Bldg Wooton High School Flr Lower Level Rm 13	< 0.4
2403472	3922829	12/03/2018 3:19 pm 12/06/2018 12:15 pm	Bldg Wooton High School Flr Lower Level Rm 18	< 0.4
2403473	3922830	12/03/2018 3:19 pm 12/06/2018 12:06 pm	Bldg Wooton High School Flr Lower Level Rm 18	< 0.4

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Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey
Wooton High School
Maryland 20850 USA


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2403474	3922711	12/03/2018 3:20 pm 12/06/2018 12:16 pm	Bldg Wooton High School Flr Lower Level Rm 19	< 0.4
2403475	3922712	12/03/2018 3:25 pm 12/06/2018 12:07 pm	Bldg Wooton High School Flr Lower Level Rm 13	< 0.4
2403476	3922713	12/03/2018 3:25 pm 12/06/2018 12:19 pm	Bldg Wooton High School Flr Lower Level Rm 20	0.4
2403477	3922714	12/03/2018 3:25 pm 12/06/2018 12:18 pm	Bldg Wooton High School Flr Lower Level Rm 21	1.4
2403478	3922715	12/03/2018 3:28 pm 12/06/2018 12:18 pm	Bldg Wooton High School Flr Lower Level Rm Gir	1.0
2403479	3922716	12/03/2018 3:28 pm 12/06/2018 12:20 pm	Bldg Wooton High School Flr Lower Level Rm PE	0.7
2403480	3922717	12/03/2018 3:30 pm 12/06/2018 12:20 pm	Bldg Wooton High School Flr Lower Level Rm 27	1.0
2403481	3922718	12/03/2018 3:32 pm 12/06/2018 12:20 pm	Bldg Wooton High School Flr Lower Level Rm 24	0.4
2403482	3922719	12/03/2018 3:33 pm 12/06/2018 12:21 pm	Bldg Wooton High School Flr Lower Level Rm 27	< 0.4
2403483	3922720	12/03/2018 3:34 pm 12/06/2018 12:22 pm	Bldg Wooton High School Flr Lower Level Rm 27	< 0.4
2403484	3922721	12/03/2018 3:35 pm 12/06/2018 12:23 pm	Bldg Wooton High School Flr Lower Level Rm Lo	< 0.4

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NRPP 103216 AL
NRSB ARL0017

Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey
Wooton High School
Maryland 20850 USA


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2403485	3922722	12/03/2018 3:35 pm 12/06/2018 12:24 pm	Bldg Wooton High School Flr Lower Level Rm Lo	< 0.4
2403486	3922723	12/03/2018 3:36 pm 12/06/2018 12:25 pm	Bldg Wooton High School Flr Lower Level Rm 41	< 0.4
2403487	3922724	12/03/2018 3:36 pm 12/06/2018 12:26 pm	Bldg Wooton High School Flr Lower Level Rm 41	< 0.4
2403488	3922725	12/03/2018 3:36 pm 12/06/2018 12:26 pm	Bldg Wooton High School Flr Lower Level Rm 41	< 0.4
2403489	3922726	12/03/2018 3:39 pm 12/06/2018 12:27 pm	Bldg Wooton High School Flr Lower Level Rm 42	< 0.4
2403490	3922727	12/03/2018 3:40 pm 12/06/2018 12:27 pm	Bldg Wooton High School Flr Lower Level Rm 42	< 0.4
2403491	3922728	12/03/2018 3:41 pm 12/06/2018 12:02 pm	Bldg Wooton High School Flr Lower Level Rm 42	< 0.4
2403492	3922729	12/03/2018 3:41 pm 12/06/2018 12:28 pm	Bldg Wooton High School Flr Lower Level Rm 42	< 0.4
2403493	3922730	12/03/2018 3:43 pm 12/06/2018 12:28 pm	Bldg Wooton High School Flr Lower Level Rm 43	1.8
2403494	3922731	12/03/2018 3:54 pm 12/06/2018 12:31 pm	Bldg Wooton High School Floor 1 Room 147	1.1
2403495	3922732	12/03/2018 3:54 pm 12/06/2018 12:32 pm	Bldg Wooton High School Floor 1 Room 148	0.6

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NRPP 103216 AL
NRSB ARL0017

Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey
Wooton High School
Maryland 20850 USA


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2403496	3922733	12/03/2018 3:55 pm 12/06/2018 12:34 pm	Bldg Wooton High School Floor 1 Room 131	< 0.4
2403497	3922734	12/03/2018 3:56 pm 12/06/2018 12:35 pm	Bldg Wooton High School Floor 1 Room 130	< 0.4
2403498	3922735	12/03/2018 3:57 pm 12/06/2018 12:36 pm	Bldg Wooton High School Floor 1 Room 138	< 0.4
2403499	3922736	12/03/2018 3:58 pm 12/06/2018 12:37 pm	Bldg Wooton High School Floor 1 Room 149	0.4
2403500	3922737	12/03/2018 3:59 pm 12/06/2018 12:37 pm	Bldg Wooton High School Floor 1 Room 150	< 0.4
2403501	3922738	12/03/2018 4:00 pm 12/06/2018 12:38 pm	Bldg Wooton High School Floor 1 Room 151	0.4
2403502	3922739	12/03/2018 4:01 pm 12/06/2018 12:38 pm	Bldg Wooton High School Floor 1 Room 152	1.0
2403503	3922740	12/03/2018 4:01 pm 12/06/2018 12:38 pm	Bldg Wooton High School Floor 1 Room 152	0.9
2403504	3922741	12/03/2018 4:01 pm 12/06/2018 12:39 pm	Bldg Wooton High School Floor 1 Room 153	0.7
2403505	3922742	12/03/2018 4:02 pm 12/06/2018 12:40 pm	Bldg Wooton High School Floor 1 Room 154	< 0.4
2403506	3922743	12/03/2018 4:03 pm 12/06/2018 12:41 pm	Bldg Wooton High School Floor 1 Room 155	< 0.4

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Laboratory Report for:

Property Tested: Project # 04481387-1

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2930 Eskridge Road
Fairfax VA 22031


MCPS Radon Survey
Wooton High School
Maryland 20850 USA


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2403507	3922744	12/03/2018 4:03 pm 12/06/2018 12:42 pm	Bldg Wooton High School Floor 1 Room 156	< 0.4
2403508	3922745	12/03/2018 4:04 pm 12/06/2018 12:42 pm	Bldg Wooton High School Floor 1 Room 160	< 0.4
2403509	3922746	12/03/2018 4:05 pm 12/06/2018 12:43 pm	Bldg Wooton High School Floor 1 Room 167	< 0.4
2403510	3922747	12/03/2018 4:06 pm 12/06/2018 12:43 pm	Bldg Wooton High School Floor 1 Room 161	< 0.4
2403511	3922748	12/03/2018 4:07 pm 12/06/2018 12:44 pm	Bldg Wooton High School Floor 1 Room 162	< 0.4
2403512	3922749	12/03/2018 4:07 pm 12/06/2018 12:45 pm	Bldg Wooton High School Floor 1 Room 166	0.4
2403513	3922750	12/03/2018 4:08 pm 12/06/2018 12:45 pm	Bldg Wooton High School Floor 1 Room 166	0.4
2403514	3922751	12/03/2018 4:10 pm 12/06/2018 12:45 pm	Bldg Wooton High School Floor 1 Room 163	0.6
2403515	3922752	12/03/2018 4:12 pm 12/06/2018 12:50 pm	Bldg Wooton High School Floor 1 Room 130B	0.4
2403516	3922753	12/03/2018 4:12 pm 12/06/2018 12:46 pm	Bldg Wooton High School Floor 1 Room 173	< 0.4
2403517	3922754	12/03/2018 4:13 pm 12/06/2018 12:47 pm	Bldg Wooton High School Floor 1 Room 174	< 0.4

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Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey
Wooton High School
Maryland 20850 USA


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2403518	3922755	12/03/2018 4:13 pm 12/06/2018 12:47 pm	Bldg Wooton High School Floor 1 Room 175	< 0.4
2403519	3922756	12/03/2018 4:15 pm 12/06/2018 12:51 pm	Bldg Wooton High School Floor 1 Room 176	< 0.4
2403520	3922757	12/03/2018 4:16 pm 12/06/2018 12:51 pm	Bldg Wooton High School Floor 1 Room 168	< 0.4
2403521	3922758	12/03/2018 4:16 pm 12/06/2018 12:51 pm	Bldg Wooton High School Floor 1 Room 169	< 0.4
2403522	3922759	12/03/2018 4:17 pm 12/06/2018 12:51 pm	Bldg Wooton High School Floor 1 Room 169	< 0.4
2403523	3922760	12/03/2018 4:17 pm 12/06/2018 12:50 pm	Bldg Wooton High School Floor 1 Room 169A	0.7
2403524	3922761	12/03/2018 4:18 pm 12/06/2018 12:51 pm	Bldg Wooton High School Floor 1 Room 181	< 0.4
2403525	3922762	12/03/2018 4:18 pm 12/06/2018 12:51 pm	Bldg Wooton High School Floor 1 Room 180	< 0.4
2403526	3922763	12/03/2018 4:19 pm 12/06/2018 12:52 pm	Bldg Wooton High School Floor 1 Room 182	0.4
2403527	3922764	12/03/2018 4:20 pm 12/06/2018 12:52 pm	Bldg Wooton High School Floor 1 Room 183	0.8
2403528	3922765	12/03/2018 4:21 pm 12/06/2018 12:54 pm	Bldg Wooton High School Floor 1 Room 184	< 0.4

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey
Wooton High School
Maryland 20850 USA


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2403529	3922766	12/03/2018 4:21 pm - 12/06/2018 12:55 pm	Bldg Wooton High School Floor 1 Room 185A	< 0.4
2403530	3922767	12/03/2018 4:22 pm - 12/06/2018 12:55 pm	Bldg Wooton High School Floor 1 Room 185B	0.9
2403531	3922768	12/03/2018 4:22 pm - 12/06/2018 12:56 pm	Bldg Wooton High School Floor 1 Room 186	0.4
2403532	3922769	12/03/2018 4:23 pm - 12/06/2018 12:57 pm	Bldg Wooton High School Floor 1 Room 186	0.4
2403533	3922770	12/03/2018 4:26 pm - 12/06/2018 12:58 pm	Bldg Wooton High School Floor 1 Room 187	0.4
2403534	3922691	12/03/2018 4:27 pm - 12/06/2018 12:09 pm	Bldg Wooton High School Floor 1 Room 188	< 0.4
2403535	3922692	12/03/2018 4:08 pm - 12/06/2018 12:59 pm	Bldg Wooton High School Floor 1 Room 189	0.6
2403536	3922693	12/03/2018 4:28 pm - 12/06/2018 12:59 pm	Bldg Wooton High School Floor 1 Room 189A	0.5
2403537	3922694	12/03/2018 4:31 pm - 12/06/2018 1:01 pm	Bldg Wooton High School Floor 1 Room 189C	1.8
2403538	3922695	12/03/2018 4:31 pm - 12/06/2018 1:01 pm	Bldg Wooton High School Floor 1 Room 193	< 0.4
2403539	3922696	12/03/2018 4:32 pm - 12/06/2018 1:02 pm	Bldg Wooton High School Floor 1 Room 193	0.4

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

Distributed by: Intertek-PSI (VA)

Date Received: 12/12/2018 Date Logged: 12/12/2018 Date Analyzed: 12/13/2018 Date Reported: 12/21/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey
Wooton High School
Maryland 20850 USA


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2403540	3922697	12/03/2018 4:35 pm 12/06/2018 1:04 pm	Bldg Wooton High School Floor 1 Room 193I	0.5
2403541	3922698	12/03/2018 4:35 pm 12/06/2018 1:05 pm	Bldg Wooton High School Flr 1 Rm Stage Office	1.1
2403542	3922699	12/03/2018 4:38 pm 12/06/2018 1:05 pm	Bldg Wooton High School Flr 1 Rm Stage Office	1.1
2403543	3922700	12/03/2018 4:39 pm 12/06/2018 1:05 pm	Bldg Wooton High School Flr 1 Rm Make Up Rm	0.5
2403544	3922701	12/03/2018 4:40 pm 12/06/2018 1:06 pm	Bldg Wooton High School Floor 1 Room 193U	0.5
2403545	3922702	12/03/2018 4:45 pm 12/06/2018 1:06 pm	Bldg Wooton High School Floor 1 Room 193T	0.4
2403546	3922703	12/03/2018 4:46 pm 12/06/2018 12:00 pm	Bldg Wooton High School Floor 1 Room 100	0.4
2403547	3922704	12/03/2018 4:47 pm 12/06/2018 12:00 pm	Bldg Wooton High School Floor 1 Room 100A	< 0.4
2403548	3922705	12/03/2018 4:48 pm 12/06/2018 12:00 pm	Bldg Wooton High School Floor 1 Room 100B	0.6
2403549	3922706	12/03/2018 4:49 pm 12/06/2018 12:02 pm	Bldg Wooton High School Floor 1 Room 100C	< 0.4
2403550	3922707	12/03/2018 4:49 pm 12/06/2018 12:02 pm	Bldg Wooton High School Floor 1 Room 100D	< 0.4

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Report Approved By: 

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey
Wooton High School
Maryland 20850 USA


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2403551	3922709	12/03/2018 4:49 pm 12/06/2018 12:04 pm	Bldg Wooton High School Flr 1 Rm 100 Conferen	< 0.4
2403552	3922710	12/03/2018 4:51 pm 12/06/2018 12:04 pm	Bldg Wooton High School Floor 1 Room 100G	1.2
2403553	3922671	12/03/2018 4:53 pm 12/06/2018 12:04 pm	Bldg Wooton High School Floor 1 Room 100H	< 0.4
2403554	3922672	12/03/2018 4:54 pm 12/06/2018 1:05 pm	Bldg Wooton High School Floor 1 Room 104	< 0.4
2403555	3922673	12/03/2018 4:54 pm 12/06/2018 1:06 pm	Bldg Wooton High School Floor 1 Room 104A	< 0.4
2403556	3922674	12/03/2018 4:55 pm 12/06/2018 1:07 pm	Bldg Wooton High School Floor 1 Room 103	< 0.4
2403557	3922675	12/03/2018 4:56 pm 12/06/2018 1:08 pm	Bldg Wooton High School Floor 1 Room 103F	< 0.4
2403558	3922676	12/03/2018 4:57 pm 12/06/2018 1:09 pm	Bldg Wooton High School Floor 1 Room 103C	< 0.4
2403559	3922677	12/03/2018 4:57 pm 12/06/2018 1:10 pm	Bldg Wooton High School Floor 1 Room 103E	< 0.4
2403560	3922678	12/03/2018 4:58 pm 12/06/2018 1:11 pm	Bldg Wooton High School Floor 1 Room 103D	< 0.4
2403561	3922679	12/03/2018 4:59 pm 12/06/2018 1:11 pm	Bldg Wooton High School Floor 1 Room 103D	< 0.4

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Report Approved By: 

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey
Wooton High School
Maryland 20850 USA


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2403562	3922680	12/03/2018 4:59 pm 12/06/2018 1:12 pm	Bldg Wooton High School Flr 1 Rm 103 Office 1	< 0.4
2403563	3922811	12/03/2018 5:00 pm 12/06/2018 1:12 pm	Bldg Wooton High School Floor 1 Room 103G	< 0.4
2403564	3922812	12/03/2018 5:00 pm 12/06/2018 1:13 pm	Bldg Wooton High School Floor 1 Room 103H	< 0.4
2403565	3922813	12/03/2018 5:01 pm 12/06/2018 1:14 pm	Bldg Wooton High School Flr 1 Rm 103 Office 2	< 0.4
2403566	3922814	12/03/2018 5:01 pm 12/06/2018 1:14 pm	Bldg Wooton High School Floor 1 Room 103I	< 0.4
2403567	3922815	12/03/2018 5:02 pm 12/06/2018 1:15 pm	Bldg Wooton High School Floor 1 Room 103J	< 0.4
2403568	3922816	12/03/2018 5:02 pm 12/06/2018 1:15 pm	Bldg Wooton High School Floor 1 Room 103K	< 0.4
2403569	3922817	12/03/2018 5:04 pm 12/06/2018 1:16 pm	Bldg Wooton High School Floor 1 Room 103L	< 0.4
2403570	3922818	12/03/2018 5:04 pm 12/06/2018 1:17 pm	Bldg Wooton High School Floor 1 Room 103L	< 0.4
2403571	3922819	12/03/2018 5:06 pm 12/06/2018 1:17 pm	Bldg Wooton High School Floor 1 Room 101	< 0.4
2403572	3922820	12/03/2018 5:06 pm 12/06/2018 1:18 pm	Bldg Wooton High School Floor 1 Room 101 Offic	< 0.4

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Report Approved By: 

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey
Wooton High School
Maryland 20850 USA


Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2403573	3922661	12/03/2018 5:07 pm	12/06/2018 1:19 pm	Bldg Wooton High School Flr 1 Rm Media Center	< 0.4
2403574	3922662	12/03/2018 5:08 pm	12/06/2018 1:19 pm	Bldg Wooton High School Flr 1 Rm Media Center	< 0.4
2403575	3922663	12/03/2018 5:09 pm	12/06/2018 1:19 pm	Bldg Wooton High School Floor 1 Room 102B	< 0.4
2403576	3922664	12/03/2018 5:09 pm	12/06/2018 1:20 pm	Bldg Wooton High School Floor 1 Room 102E	< 0.4
2403577	3922665	12/03/2018 5:10 pm	12/06/2018 1:20 pm	Bldg Wooton High School Floor 1 Room TV Studi	< 0.4
2403578	3922666	12/03/2018 5:12 pm	12/06/2018 1:21 pm	Bldg Wooton High School Floor 1 Room 102G	< 0.4
2403579	3922667	12/03/2018 5:12 pm	12/06/2018 1:24 pm	Bldg Wooton High School Floor 1 Room 102H	< 0.4
2403580	3922668	12/03/2018 5:12 pm	12/06/2018 1:24 pm	Bldg Wooton High School Floor 1 Room 108	< 0.4
2403581	3922669	12/03/2018 5:12 pm	12/06/2018 1:24 pm	Bldg Wooton High School Floor 1 Room 108	< 0.4
2403582	3922670	12/03/2018 5:14 pm	12/06/2018 12:30 pm	Bldg Wooton High School Floor 1 Room 110	< 0.4
2403583	3919113	12/03/2018 5:15 pm	12/06/2018 1:37 pm	Bldg Wooton High School Floor 1 Room 141	< 0.4

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey
Wooton High School
Maryland 20850 USA


Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2403584	3919114	12/03/2018 5:22 pm	12/06/2018 1:36 pm	Bldg Wooton High School Floor 2 Room 243	< 0.4
2403585	3919115	12/03/2018 5:03 pm	12/06/2018 1:34 pm	Bldg Wooton High School Floor 2 Room 249	< 0.4
2403586	3919116	12/03/2018 5:25 pm	12/06/2018 1:32 pm	Bldg Wooton High School Floor 2 Room 255	< 0.4
2403587	3919117	12/03/2018 5:26 pm	12/06/2018 1:30 pm	Bldg Wooton High School Floor 2 Room 285	< 0.4
2403588	3919118	12/03/2018 5:27 pm	12/06/2018 1:30 pm	Bldg Wooton High School Floor 2 Room 207	< 0.4
2403589	3919119	12/03/2018 5:29 pm	12/06/2018 1:30 pm	Bldg Wooton High School Floor 2 Room 209	< 0.4
2403590	3919120	12/03/2018 5:09 pm	12/06/2018 1:30 pm	Bldg Wooton High School Floor 2 Room 209	< 0.4
2403591	3923173	12/03/2018 3:02 pm	12/06/2018 1:37 pm	Bldg Wooton High School	< 0.4
2403592	3923174	12/03/2018 3:02 pm	12/06/2018 1:37 pm	Bldg Wooton High School	< 0.4
2403593	3922991	12/03/2018 6:00 am	12/06/2018 1:37 pm	Bldg Wooton High School	< 0.4
2403594	3922992	12/03/2018 6:00 am	12/06/2018 1:37 pm	Bldg Wooton High School	< 0.4

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

Distributed by: Intertek-PSI (VA)

Date Received: 12/12/2018 Date Logged: 12/12/2018 Date Analyzed: 12/13/2018 Date Reported: 12/21/2018

Report Reviewed By: 

Report Approved By: 

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NELAC NY 11769
NRPP 101193 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
Wooton High School
Rockville MD 20850

Log Number	Device Number	Area Tested	Result pCi/L
2403464	3888449	Bldg Wooton High School Flr Lower Level Rm 5	0.5

Radon test results are below the EPA action level of 4 pCi/L. The EPA suggests that you may want to test again in the future to ensure that radon levels remain below the action level. If the property tested uses water from a private well, you may wish to consider testing for radon in water.

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

Distributed by: Intertek-PSI (VA)

Test Began:	12/03/2018	3:02 pm	Date Received:	12/07/2018	Date Analyzed:	12/08/2018
Test Ended:	12/06/2018	12:10 pm	Date Logged:	12/07/2018	Date Reported:	12/21/2018
Test Exposure Duration: 69.1 Hours						

Report Reviewed By:  Report Approved By: 

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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: 

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EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT Intertek - PSI

Job Number 187732

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

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

Date Start: _____ Date Stop: _____

Time Start: 0947 Time Stop: 0947

Time Start: _____ Time Stop: _____

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

Device No.'s: _____

3926831 thru 3926840

G2 left

Date Start: _____ Date Stop: _____

Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____

Time Start: _____ Time Stop: _____

Device No.'s: _____

Device No.'s: _____

Date Start: _____ Date Stop: _____

Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____

Time Start: _____ Time Stop: _____

Device No.'s: _____

Device No.'s: _____

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



Chain of Custody

Project Name: MCPS Radon Survey 2018

Name of Schools:

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

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

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

RADON SCREENING SURVEY – FOLLOW-UP THOMAS WOOTTON HIGH SCHOOL

2100 Wootton Pkwy., Rockville, Maryland 20850

EXECUTIVE SUMMARY

Date of Test Report:	3/14/18
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	26
# Rooms \geq 4.0 pCi/L:	1
Low Value:	<0.3
High Value:	5.9
Confirmed Rooms \geq 4.0 pCi/L US EPA Action Level	1

Summary of Sampling Events \geq 4.0 pCi/L

Room	Result (pCi/L) 1/31/18	Result (pCi/L) 3/9/18	Average Result (pCi/L)
193	5.6	5.9	5.8

MCPS RADON TESTING - EXECUTIVE SUMMARY

Site Name	Thomas S. Wootton High School
Date of Report	March 14, 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	26
# Rooms ≥ 4.0 pCi/L	1
Lowest Value	<0.3 pCi/L
Highest Value	5.9 pCi/L

Project Status

Rooms with results ≥ 4.0 pCi/L: 193 (5.9, 5.0, 4.0, 3.8 pCi/L)

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



March 14, 2018

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

Re: Radon Testing Services

KCI Job #1214634188

Location: Thomas S. Wootton High School

2100 Wootton Pkwy.
Rockville, Maryland 20850

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 Thomas S. Wootton High School, located at 2100 Wootton Pkwy. in Rockville, Maryland 20850 (subject site).

SCOPE OF SERVICES

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

KCI visited the site on February 12, 2018 and deployed thirty-nine (39) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

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

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

KCI returned to the site on February 15, 2018 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Aircheck, Inc. for analysis by gamma-ray spectroscopy. Aircheck, Inc. is a NRSB certified analytical laboratory for radon analysis (certification #ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

EVALUATION OF TESTING CONDITIONS

These tests represent:

- Follow-up to post-mitigation biennial testing.

These tests were conducted to:

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

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures ranged from the mid-20s to upper 40s and high temperatures ranged from the high-30s to the high-60s. Maximum sustained winds ranged from 10-15 miles per hour. Average humidity was around 69%. 0.05 Inches of precipitation was recorded during the testing period.

RESULTS

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

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 pCi/L	193	5.9, 5.0, 4.0, 3.8
≤4.0 pCi/L	See Attachment B	See Attachment B

Quality Control Samples	
Results of Blank Canisters:	The field blanks, 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		
Thomas Wootton High School		
Test Period: 02/12/18-02/15/18		
Kit Number	Room / Area	Result
7984282	5	1.5
7984281	5	1.0
7984283	5	0.7
7984270	16	< 0.3
7984285	18	1.0
7984274	106	< 0.3
7984277	119	0.9
7984275	123	< 0.3
7984253	143	0.8
7984252	149	3.3
7984256	193	3.8
7984261	193	5.0
7984268	193	5.9
7984257	193	4.0
7984260	213	0.7
7984259	214	0.6
7984234	245	0.8
7984273	100E	1.1
7984278	103H	< 0.3
7984258	* 103K 103KK (Tampered - Void by Lab)	-
7984233	10M	< 0.3
7984267	130B	2.1
7984269	* 160 (Missing)	-
7984255	211A	0.6
7984271	41A	0.6
7984265	41B	< 0.3
7984263	42B	1.0
7984250	GYM	1.2
7984251	GYM	1.5
7984284	KITCHEN	1.0
7984286	LOWER GYM	3.3
7984287	LOWER GYM	3.4
7984235	SS2	< 0.3

Table Note:

* Missing or Compromised Sample

Table 2 - Radon Testing Results		
Thomas Wootton High School		
Test Period: 02/12/18-02/15/18		
Kit Number	QC Type	Result
7984262	D (100E)	1.0
7984276	D (103H)	1.0
7984264	D (42B)	0.6
7984266	D (GYM)	1.4
7984272	FB (106)	< 0.3
7984254	FB (143)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:**THOMAS WOOTON HIGH SCHOOL
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7984262	100E	2018-02-12 @ 10:00 am	2018-02-15 @ 10:00 am	1.0 ± 0.4	2018-02-19
7984273	100E	2018-02-12 @ 10:00 am	2018-02-15 @ 10:00 am	1.1 ± 0.4	2018-02-19
7984278	103H	2018-02-12 @ 11:00 am	2018-02-15 @ 10:00 am	< 0.3	2018-02-19
7984276	103H	2018-02-12 @ 11:00 am	2018-02-15 @ 10:00 am	1.0 ± 0.3	2018-02-19
7984258	103K 103KK	2018-02-12 @ 11:00 am	2018-02-15 @ 10:00 am	???? UI	2018-02-19
7984274	106	2018-02-12 @ 11:00 am	2018-02-15 @ 10:00 am	< 0.3	2018-02-19
7984272	106	2018-02-12 @ 11:00 am	2018-02-15 @ 10:00 am	< 0.3	2018-02-19
7984233	10M	2018-02-12 @ 11:00 am	2018-02-15 @ 10:00 am	< 0.3	2018-02-19
7984277	119	2018-02-12 @ 11:00 am	2018-02-15 @ 10:00 am	0.9 ± 0.4	2018-02-19
7984275	123	2018-02-12 @ 11:00 am	2018-02-15 @ 10:00 am	< 0.3	2018-02-19
7984267	130B	2018-02-12 @ 11:00 am	2018-02-15 @ 10:00 am	2.1 ± 0.4	2018-02-19
7984253	143	2018-02-12 @ 11:00 am	2018-02-15 @ 10:00 am	0.8 ± 0.3	2018-02-19
7984254	143	2018-02-12 @ 11:00 am	2018-02-15 @ 10:00 am	< 0.3	2018-02-19
7984252	149	2018-02-12 @ 11:00 am	2018-02-15 @ 10:00 am	3.3 ± 0.4	2018-02-19
7984270	16	2018-02-12 @ 10:00 am	2018-02-15 @ 10:00 am	< 0.3	2018-02-19
7984269	160	@	@		
7984285	18	2018-02-12 @ 10:00 am	2018-02-15 @ 10:00 am	1.0 ± 0.4	2018-02-19
7984257	193	2018-02-12 @ 11:00 am	2018-02-15 @ 10:00 am	4.0 ± 0.4	2018-02-19
7984268	193	2018-02-12 @ 11:00 am	2018-02-15 @ 10:00 am	5.9 ± 0.6	2018-02-19
7984261	193	2018-02-12 @ 11:00 am	2018-02-15 @ 10:00 am	5.0 ± 0.5	2018-02-19
7984256	193	2018-02-12 @ 11:00 am	2018-02-15 @ 10:00 am	3.8 ± 0.5	2018-02-19
7984255	211A	2018-02-12 @ 11:00 am	2018-02-15 @ 10:00 am	0.6 ± 0.3	2018-02-19
7984260	213	2018-02-12 @ 11:00 am	2018-02-15 @ 10:00 am	0.7 ± 0.3	2018-02-19
7984259	214	2018-02-12 @ 11:00 am	2018-02-15 @ 10:00 am	0.6 ± 0.3	2018-02-19
7984234	245	2018-02-12 @ 11:00 am	2018-02-15 @ 10:00 am	0.8 ± 0.3	2018-02-19
7984271	41A	2018-02-12 @ 10:00 am	2018-02-15 @ 10:00 am	0.6 ± 0.3	2018-02-19
7984265	41B	2018-02-12 @ 10:00 am	2018-02-15 @ 10:00 am	< 0.3	2018-02-19
7984263	42B	2018-02-12 @ 10:00 am	2018-02-15 @ 10:00 am	1.0 ± 0.4	2018-02-19
7984264	42B	2018-02-12 @ 10:00 am	2018-02-15 @ 10:00 am	0.6 ± 0.4	2018-02-19
7984281	5	2018-02-12 @ 10:00 am	2018-02-15 @ 10:00 am	1.0 ± 0.3	2018-02-19
7984282	5	2018-02-12 @ 10:00 am	2018-02-15 @ 10:00 am	1.5 ± 0.3	2018-02-19
7984283	5	2018-02-12 @ 10:00 am	2018-02-15 @ 10:00 am	0.7 ± 0.3	2018-02-19
7984250	GYM	2018-02-12 @ 11:00 am	2018-02-15 @ 10:00 am	1.2 ± 0.4	2018-02-19
7984266	GYM	2018-02-12 @ 11:00 am	2018-02-15 @ 10:00 am	1.4 ± 0.4	2018-02-19
7984251	GYM	2018-02-12 @ 11:00 am	2018-02-15 @ 10:00 am	1.5 ± 0.4	2018-02-19
7984284	KITCHEN	2018-02-12 @ 10:00 am	2018-02-15 @ 10:00 am	1.0 ± 0.3	2018-02-19
7984286	LOWER GYM	2018-02-12 @ 10:00 am	2018-02-15 @ 10:00 am	3.3 ± 0.4	2018-02-19

February 28, 2018

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**THOMAS WOOTON HIGH SCHOOL
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7984287	LOWER GYM	2018-02-12 @ 10:00 am	2018-02-15 @ 10:00 am	3.4 ± 0.4	2018-02-19
7984235	SS2	2018-02-12 @ 11:00 am	2018-02-15 @ 10:00 am	< 0.3	2018-02-19

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon

Names of Schools:

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

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

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

Radon test result report for:
OFFICE BLANKS

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

Radon test result report for:
TRANSIT BLANKS

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

February 28, 2018

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 183530

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

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

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

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

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

MCPS RADON TESTING - EXECUTIVE SUMMARY

Site Name	Thomas S. Wootton High School
Date of Report	January 31, 2018
Round of Testing	Initial Follow-up Post Remediation 2 year testing 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	132
# Rooms ≥ 4.0 pCi/L	1
Lowest Value	< 0.3 pCi/L
Highest Value	5.6 pCi/L

Rooms with results ≥ 4.0 pCi/L:

193 (5.0, 4.7, 5.6, 4.4 pCi/L)

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

Missing or compromised samples need re-test.



January 31, 2018

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

Re: Radon Testing Services

KCI Job #1214694182

Location: Thomas S. Wootton High School

2100 Wootton Pkwy.
Rockville, Maryland 20850

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 Thomas S. Wootton High School, located at 2100 Wootton Pkwy. in Rockville, Maryland 20850 (subject site).

SCOPE OF SERVICES

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

KCI visited the site on November 28, 2017 and deployed one-hundred-sixty-five (165) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Appendix A of this report.

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

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

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

EVALUATION OF TESTING CONDITIONS

These tests represent:

- Post-mitigation biennial testing.

These tests were conducted to:

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

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

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

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

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

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

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

RESULTS

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

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 pCi/L	193	5.6, 5.0, 4.7, 4.4
≤4.0 pCi/L	See Attachment B	See Attachment B

Quality Control Samples	
Results of Blank Canisters:	The field blanks, 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,



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

Attachments:

B - Tables 1-3, Radon Test Summary Spreadsheets

C- Laboratory Analytical Results

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Radon Testing Results		
Thomas Wootton High School		
Test Period: 11/28/17-12/01/17		
Kit Number	Room / Area	Result
7976828	5	0.8
7976809	13	0.7
7976829	15	1.0
7976837	19	0.8
7976807	22	0.9
7976801	40	1.7
7976804	41	0.5
7976838	42	0.9
7976831	43	1.7
7976629	100	1.0
7976633	100	0.9
7976872	101	1.9
7976657	102	0.8
7976661	102	1.2
7976925	103	< 0.3
7976923	104	0.6
7976870	105	< 0.3
7976858	107	< 0.3
7976865	108	0.7
7976860	109	0.7
7976859	110	< 0.3
7976876	111	< 0.3
7976855	112	1.2
7976869	113	0.7
7976627	118	0.6
7976918	124	< 0.3
7976670	125	< 0.3
7976917	128	0.5
7976625	130	0.7
7976635	131	< 0.3
7976639	141	0.5
7976631	142	0.6
7976637	144	0.6
7976650	145	1.6
7976638	146	1.5
7976626	147	2.3
7976649	148	1.3
7976902	150	0.9
7976643	151	2.2
7976906	152	0.8
7976636	153	1.3
7976927	154	0.7
7976916	155	1.1
7976915	156	< 0.3
7976901	161	< 0.3
7977330	162	< 0.3

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Thomas Wootton High School		
Test Period: 11/28/17-12/01/17		
Kit Number	Room / Area	Result
7977332	163	0.9
7977331	166	1.2
7976912	167	1.0
7977668	168	< 0.3
7977673	169	0.6
7977337	173	0.8
7976677	174	0.5
7977336	175	0.6
7977338	176	0.9
7977675	180	< 0.3
7976676	181	0.6
7977666	182	1.3
7977679	183	2.6
7977667	184	< 0.3
7977680	185	1.1
7977676	186	1.7
7977677	187	1.1
7976871	188	1.0
7976874	189	1.5
7976864	193	5.0
7976868	193	4.7
7976830	208	< 0.3
7976850	209	< 0.3
7976849	211	< 0.3
7976848	212	< 0.3
7976818	215	< 0.3
7976814	216	< 0.3
7976813	217	0.5
7976808	221	< 0.3
7976840	222	0.7
7976841	226	1.0
7976617	230	0.7
7976624	231	< 0.3
7976819	241	0.8
7976817	242	0.9
7976820	243	0.8
7976822	244	0.6
7976602	246	0.6
7976601	247	0.6
7976835	248	< 0.3
7976622	249	< 0.3
7976621	250	< 0.3
7976620	251	0.7
7976640	100A	1.0
7976630	100B	0.9
7976642	100C	3.0
7976641	100D	1.0
7976662	100G	1.2
7976659	100H	1.5
7976663	100I	1.2

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Thomas Wootton High School		
Test Period: 11/28/17-12/01/17		
Kit Number	Room / Area	Result
7976658	100M	1.7
7976656	102B	1.4
7976655	102E	1.9
7976926	103C	0.8
7976903	103E	< 0.3
7976632	103F	0.9
7976931	103G	1.0
7976908	* 103H (Missing)	< 0.3
7976907	103I	0.6
7976654	103J	1.1
7976651	103K	0.9
7976920	103L	0.9
7976628	103M	0.8
7976634	103N	0.7
7976928	103O	0.7
7976921	104A	< 0.3
7976922	104A	< 0.3
7976877	* 106 (Missing)	-
7976825	109B	0.9
7976646	118A	0.6
7976919	* 119 (Missing)	-
7976644	130A	0.5
7976645	* 130B (Tampered)	0.8
7976802	13B	1.4
7977324	* 143 (Tampered)	< 0.3
7976648	* 149 (Missing)	-
7976913	* 160 (Tampered)	0.6
7976862	189A	2.0
7976863	* 193 (Tampered)	5.6
7976867	* 193 (Tampered)	4.4
7976832	20A	1.4
7976826	20E	1.5
7976844	* 211A (Tampered)	0.8
7976816	* 213 (Tampered)	0.6
7976843	* 214 (Missing)	-
7976806	21A	1.7
7976616	230A	0.6
7976824	* 245 (Missing)	-
7976810	* 5 (Missing)	-
7976834	* 5 (Missing)	-
7976811	* 5 (Tampered)	1.0
7977372	* GYM (Missing)	-
7977393	* GYM (Missing)	-
7976833	LOWER GYM	2.7
7976839	LOWER GYM	3.8
7976652	TV ROOM	1.2
7976805	WEIGHT ROOM	0.8

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Thomas Wootton High School		
Test Period: 11/28/17-12/01/17		
Kit Number	QC Type	Result
7976653	D (100M)	1.8
7976873	D (101)	1.9
7976909	* D (103H:Missing)	-
7976924	D (104)	0.8
7976856	D (105)	< 0.3
7976861	D (111)	0.6
7976812	D (13)	0.8
7976647	D (130)	< 0.3
7976803	D (13B)	0.7
7977398	D (141)	0.6
7977325	D (149)	1.6
7977326	D (167)	1.2
7977674	D (169)	< 0.3
7976815	D (209)	0.6
7976623	D (230A)	0.6
7976821	D (243)	0.9
7976669	* D (GYM:Missing)	-
7976857	FB (112)	< 0.3
7976827	FB (22)	< 0.3
7976823	FB (244)	< 0.3
7978068	OB (OB)	< 0.3
7978097	OB (OB)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:
THOMAS WOOTTON HS
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7976633	100	2017-11-28 @ 8:00 am	2017-12-01 @ 8:00 am	0.9 ± 0.3	2017-12-04
7976629	100	2017-11-28 @ 8:00 am	2017-12-01 @ 8:00 am	1.0 ± 0.3	2017-12-04
7976640	100A	2017-11-28 @ 8:00 am	2017-12-01 @ 8:00 am	1.0 ± 0.3	2017-12-04
7976630	100B	2017-11-28 @ 8:00 am	2017-12-01 @ 8:00 am	0.9 ± 0.3	2017-12-05
7976641	100D	2017-11-28 @ 8:00 am	2017-12-01 @ 8:00 am	1.0 ± 0.3	2017-12-04
7976662	100G	2017-11-28 @ 8:00 am	2017-12-01 @ 8:00 am	1.2 ± 0.3	2017-12-04
7976663	100I	2017-11-28 @ 8:00 am	2017-12-01 @ 8:00 am	1.2 ± 0.3	2017-12-04
7976658	100M	2017-11-28 @ 8:00 am	2017-12-01 @ 8:00 am	1.7 ± 0.3	2017-12-04
7976653	100M	2017-11-28 @ 8:00 am	2017-12-01 @ 8:00 am	1.8 ± 0.3	2017-12-05
7976873	101	2017-11-28 @ 10:00 am	2017-12-01 @ 9:00 am	1.9 ± 0.3	2017-12-04
7976657	102	2017-11-28 @ 8:00 am	2017-12-01 @ 9:00 am	0.8 ± 0.3	2017-12-04
7976661	102	2017-11-28 @ 8:00 am	2017-12-01 @ 9:00 am	1.2 ± 0.3	2017-12-05
7976656	102B	2017-11-28 @ 8:00 am	2017-12-01 @ 9:00 am	1.4 ± 0.3	2017-12-04
7976655	102E	2017-11-28 @ 8:00 am	2017-12-01 @ 9:00 am	1.9 ± 0.3	2017-12-04
7976925	103	2017-11-28 @ 8:00 am	2017-12-01 @ 8:00 am	< 0.3	2017-12-04
7976926	103C	2017-11-28 @ 8:00 am	2017-12-01 @ 8:00 am	0.8 ± 0.3	2017-12-04
7976903	103E	2017-11-28 @ 8:00 am	2017-12-01 @ 8:00 am	< 0.3	2017-12-04
7976632	103F	2017-11-28 @ 8:00 am	2017-12-01 @ 8:00 am	0.9 ± 0.3	2017-12-04
7976931	103G	2017-11-28 @ 8:00 am	2017-12-01 @ 9:00 am	1.0 ± 0.3	2017-12-04
7976908	103H	2017-11-28 @ 8:00 am	2017-12-01 @ 9:00 am	< 0.3	2017-12-04
7976654	103J	2017-11-28 @ 8:00 am	2017-12-01 @ 9:00 am	1.1 ± 0.3	2017-12-04
7976651	103K	2017-11-28 @ 8:00 am	2017-12-01 @ 9:00 am	0.9 ± 0.3	2017-12-04
7976920	103L	2017-11-28 @ 8:00 am	2017-12-01 @ 9:00 am	0.9 ± 0.3	2017-12-05
7976628	103M	2017-11-28 @ 8:00 am	2017-12-01 @ 9:00 am	0.8 ± 0.3	2017-12-04
7976634	103N	2017-11-28 @ 8:00 am	2017-12-01 @ 9:00 am	0.7 ± 0.3	2017-12-05
7976924	104	2017-11-28 @ 8:00 am	2017-12-01 @ 8:00 am	0.8 ± 0.3	2017-12-04
7976921	104A	2017-11-28 @ 8:00 am	2017-12-01 @ 8:00 am	< 0.3	2017-12-04
7976922	104A	2017-11-28 @ 8:00 am	2017-12-01 @ 8:00 am	< 0.3	2017-12-04
7976856	105	2017-11-28 @ 10:00 am	2017-12-01 @ 9:00 am	< 0.3	2017-12-04
7976870	105	2017-11-28 @ 10:00 am	2017-12-01 @ 9:00 am	< 0.3	2017-12-05
7976858	107	2017-11-28 @ 10:00 am	2017-12-01 @ 9:00 am	< 0.3	2017-12-05
7976865	108	2017-11-28 @ 10:00 am	2017-12-01 @ 9:00 am	0.7 ± 0.3	2017-12-04
7976860	109	2017-11-28 @ 10:00 am	2017-12-01 @ 9:00 am	0.7 ± 0.3	2017-12-05
7976825	109B	2017-11-28 @ 10:00 am	2017-12-01 @ 9:00 am	0.9 ± 0.3	2017-12-04
7976859	110	2017-11-28 @ 10:00 am	2017-12-01 @ 9:00 am	< 0.3	2017-12-05
7976876	111	2017-11-28 @ 10:00 am	2017-12-01 @ 9:00 am	< 0.3	2017-12-05
7976857	112	2017-11-28 @ 10:00 am	2017-12-01 @ 9:00 am	< 0.3	2017-12-04

Radon test result report for:
THOMAS WOOTTON HS
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7976869	113	2017-11-28 @ 10:00 am	2017-12-01 @ 9:00 am	0.7 ± 0.3	2017-12-04
7976627	118	2017-11-28 @ 8:00 am	2017-12-01 @ 9:00 am	0.6 ± 0.3	2017-12-05
7976646	118A	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	0.6 ± 0.3	2017-12-05
7976918	124	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	< 0.3	2017-12-04
7976670	125	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	< 0.3	2017-12-04
7976812	13	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	0.8 ± 0.3	2017-12-05
7976625	130	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	0.7 ± 0.3	2017-12-04
7976644	130A	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	0.5 ± 0.3	2017-12-04
7976645	130B	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	0.8 ± 0.3	2017-12-04
7976635	131	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	< 0.3	2017-12-04
7976802	13B	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	1.4 ± 0.3	2017-12-05
7976639	141	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	0.5 ± 0.3	2017-12-04
7977398	141	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	0.6 ± 0.3	2017-12-04
7977324	143	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	< 0.3	2017-12-04
7976637	144	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	0.6 ± 0.3	2017-12-05
7976650	145	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	1.6 ± 0.3	2017-12-04
7976638	146	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	1.5 ± 0.3	2017-12-04
7976649	148	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	1.3 ± 0.3	2017-12-04
7977325	149	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	1.6 ± 0.3	2017-12-04
7976829	15	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	1.0 ± 0.3	2017-12-05
7976902	150	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	0.9 ± 0.3	2017-12-04
7976643	151	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	2.2 ± 0.3	2017-12-04
7976906	152	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	0.8 ± 0.3	2017-12-04
7976636	153	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	1.3 ± 0.3	2017-12-04
7976927	154	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	0.7 ± 0.3	2017-12-04
7976916	155	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	1.1 ± 0.3	2017-12-04
7976915	156	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	< 0.3	2017-12-04
7976913	160	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	0.6 ± 0.3	2017-12-04
7976901	161	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	< 0.3	2017-12-04
7977330	162	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	< 0.3	2017-12-04
7977332	163	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	0.9 ± 0.3	2017-12-04
7977331	166	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	1.2 ± 0.3	2017-12-04
7977326	167	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	1.2 ± 0.3	2017-12-04
7976912	167	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	1.0 ± 0.3	2017-12-04
7977668	168	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	< 0.3	2017-12-04
7977673	169	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	0.6 ± 0.3	2017-12-04
7977337	173	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	0.8 ± 0.3	2017-12-04

Radon test result report for:
THOMAS WOOTTON HS
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7976677	174	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	0.5 ± 0.3	2017-12-04
7977336	175	2017-11-28 @ 9:00 am	2017-12-01 @ 9:00 am	0.6 ± 0.3	2017-12-04
7977675	180	2017-11-28 @ 10:00 am	2017-12-01 @ 9:00 am	< 0.3	2017-12-04
7977666	182	2017-11-28 @ 10:00 am	2017-12-01 @ 9:00 am	1.3 ± 0.3	2017-12-04
7977679	183	2017-11-28 @ 10:00 am	2017-12-01 @ 9:00 am	2.6 ± 0.4	2017-12-04
7977680	185	2017-11-28 @ 10:00 am	2017-12-01 @ 9:00 am	1.1 ± 0.3	2017-12-05
7977676	186	2017-11-28 @ 10:00 am	2017-12-01 @ 9:00 am	1.7 ± 0.3	2017-12-05
7977677	187	2017-11-28 @ 10:00 am	2017-12-01 @ 9:00 am	1.1 ± 0.3	2017-12-04
7976871	188	2017-11-28 @ 10:00 am	2017-12-01 @ 9:00 am	1.0 ± 0.3	2017-12-04
7976874	189	2017-11-28 @ 10:00 am	2017-12-01 @ 9:00 am	1.5 ± 0.3	2017-12-04
7976862	189A	2017-11-28 @ 10:00 am	2017-12-01 @ 9:00 am	2.0 ± 0.3	2017-12-04
7976837	19	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	0.8 ± 0.3	2017-12-05
7976864	193	2017-11-28 @ 10:00 am	2017-12-01 @ 9:00 am	5.0 ± 0.4	2017-12-04
7976868	193	2017-11-28 @ 10:00 am	2017-12-01 @ 9:00 am	4.7 ± 0.4	2017-12-05
7976863	193	2017-11-28 @ 10:00 am	2017-12-01 @ 9:00 am	5.6 ± 0.4	2017-12-05
7976830	208	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	< 0.3	2017-12-05
7976826	20E	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	1.5 ± 0.3	2017-12-05
7976849	211	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	< 0.3	2017-12-04
7976844	211A	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	0.8 ± 0.3	2017-12-05
7976848	212	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	< 0.3	2017-12-04
7976816	213	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	0.6 ± 0.3	2017-12-05
7976818	215	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	< 0.3	2017-12-05
7976814	216	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	< 0.3	2017-12-05
7976813	217	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	0.5 ± 0.3	2017-12-05
7976806	21A	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	1.7 ± 0.3	2017-12-05
7976807	22	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	0.9 ± 0.3	2017-12-05
7976808	221	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	< 0.3	2017-12-05
7976840	222	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	0.7 ± 0.3	2017-12-05
7976841	226	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	1.0 ± 0.3	2017-12-05
7976617	230	2017-11-28 @ 12:00 pm	2017-12-01 @ 10:00 am	0.7 ± 0.3	2017-12-05
7976623	230A	2017-11-28 @ 12:00 pm	2017-12-01 @ 10:00 am	0.6 ± 0.3	2017-12-05
7976616	230A	2017-11-28 @ 12:00 pm	2017-12-01 @ 10:00 am	0.6 ± 0.3	2017-12-05
7976624	231	2017-11-28 @ 12:00 pm	2017-12-01 @ 10:00 am	< 0.3	2017-12-05
7976819	241	2017-11-28 @ 12:00 pm	2017-12-01 @ 10:00 am	0.8 ± 0.3	2017-12-05
7976817	242	2017-11-28 @ 12:00 pm	2017-12-01 @ 10:00 am	0.9 ± 0.3	2017-12-05
7976821	243	2017-11-28 @ 12:00 pm	2017-12-01 @ 10:00 am	0.9 ± 0.3	2017-12-05
7976823	244	2017-11-28 @ 12:00 pm	2017-12-01 @ 10:00 am	< 0.3	2017-12-04

Radon test result report for:
THOMAS WOOTTON HS
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7976822	244	2017-11-28 @ 12:00 pm	2017-12-01 @ 10:00 am	0.6 ± 0.3	2017-12-05
7976602	246	2017-11-28 @ 12:00 pm	2017-12-01 @ 10:00 am	0.6 ± 0.3	2017-12-05
7976835	248	2017-11-28 @ 12:00 pm	2017-12-01 @ 10:00 am	< 0.3	2017-12-05
7976622	249	2017-11-28 @ 12:00 pm	2017-12-01 @ 10:00 am	< 0.3	2017-12-05
7976621	250	2017-11-28 @ 12:00 pm	2017-12-01 @ 10:00 am	< 0.3	2017-12-05
7976620	251	2017-11-28 @ 12:00 pm	2017-12-01 @ 10:00 am	0.7 ± 0.3	2017-12-05
7976801	40	2017-11-28 @ 12:00 pm	2017-12-01 @ 10:00 am	1.7 ± 0.3	2017-12-05
7976804	41	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	0.5 ± 0.3	2017-12-04
7976831	43	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	1.7 ± 0.3	2017-12-05
7976828	5	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	0.8 ± 0.3	2017-12-05
7976811	5	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	1.0 ± 0.3	2017-12-05
7976833	LOWER GYM	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	2.7 ± 0.3	2017-12-04
7976839	LOWER GYM	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	3.8 ± 0.4	2017-12-05
7978068	OB	2017-11-28 @ 1:00 pm	2017-12-01 @ 1:00 pm	< 0.3	2017-12-04
7978097	OB	2017-11-28 @ 1:00 pm	2017-12-01 @ 2:00 pm	< 0.3	2017-12-04
7976652	TV ROOM	2017-11-28 @ 8:00 am	2017-12-01 @ 9:00 am	1.2 ± 0.3	2017-12-05
7976805	WEIGHT ROOOM	2017-11-28 @ 11:00 am	2017-12-01 @ 10:00 am	0.8 ± 0.3	2017-12-05

December 21, 2017

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
**THOMAS WOOTTON HS
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7976909	103H	@	@		
7976877	106	@	@		
7976919	119	@	@		
7976648	149	@	@		
7976843	214	@	@		
7976824	245	@	@		
7976834	5	@	@		
7976810	5	@	@		
7977372	GYM	@	@		
7977393	GYM	@	@		
7976669	GYM	@	@		

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase

Names of Schools:

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

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

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

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

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

December 19, 2017

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

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

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: Thomas Wootton High School

Date of Test Report:	11/28/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	6
# Rooms \geq 4.0 pCi/L:	0
Low Value:	0.7
High Value:	1.2

Project Status:

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



November 28, 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 # 12146341.60

Location: Thomas Wootton High School
2100 Wooten Parkway
Rockville, MD 20850

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 Thomas Wootton High School, located at 2100 Wootton Parkway in Rockville, Maryland 20850 (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 15, 2016 and deployed seven (7) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

As a quality control measure, KCI included duplicate samples, field blanks, lab transit blanks, and office blanks in accordance with AARST recommendations. In addition, KCI submitted three (3) 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 November 18, 2016 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

These tests represent:

- Post-mitigation testing for radon mitigation systems installed recently

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 60-70. Maximum sustained winds ranged from 8-14 miles per hour. Average humidity was around 65%. No precipitation was recorded during the testing period.

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 office blank and lab transit blank 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. Mouldsdale
Radon Measurement Specialist
KCI Technologies, Inc.

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Radon Testing Results		
Thomas Wootton High School		
Test Period: 11/15/16-11/18/16		
Kit Number	Room / Area	Result
7826523	41	0.7
7826517	42	0.7
7826518	41A	1.2
7826522	41B	0.7
7826520	42A	0.9
7826519	42B	1

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Thomas Wootton High School		
Test Period: 11/15/16-11/18/16		
Kit Number	QC Type	Result
7826521	D (42B)	0.9

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

November 22, 2016

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**WOOTTON HIGH SCHOOL
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7826523	41	2016-11-15 @ 11:00 am	2016-11-18 @ 11:00 am	0.7 ± 0.3	2016-11-21
7826518	41A	2016-11-15 @ 11:00 am	2016-11-18 @ 11:00 am	1.2 ± 0.3	2016-11-21
7826522	41B	2016-11-15 @ 11:00 am	2016-11-18 @ 11:00 am	0.7 ± 0.3	2016-11-21
7826517	42	2016-11-15 @ 11:00 am	2016-11-18 @ 11:00 am	0.7 ± 0.3	2016-11-21
7826520	42A	2016-11-15 @ 11:00 am	2016-11-18 @ 11:00 am	0.9 ± 0.3	2016-11-21
7826519	42B	2016-11-15 @ 11:00 am	2016-11-18 @ 11:00 am	1.0 ± 0.3	2016-11-21
7826521	42B	2016-11-15 @ 11:00 am	2016-11-18 @ 11:00 am	0.9 ± 0.3	2016-11-21

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

November 22, 2016

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

MCPS Radon

Phase 19 BLANKS

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7802909	OFFICE	2016-11-11 @ 10:00 am	2016-11-14 @ 10:00 am	< 0.3	2016-11-16
7802910	TRANSIT	2016-11-11 @ 10:00 am	2016-11-14 @ 10:00 am	< 0.3	2016-11-16

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

November 22, 2016

**** LABORATORY ANALYSIS REPORT ****

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7802912	1	2016-11-11 @ 10:00 am	2016-11-14 @ 10:00 am	23.5 ± 0.8	2016-11-16
7802913	2	2016-11-11 @ 10:00 am	2016-11-14 @ 10:00 am	23.0 ± 0.8	2016-11-16
7802911	3	2016-11-11 @ 10:00 am	2016-11-14 @ 10:00 am	25.6 ± 0.9	2016-11-16

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 177376

NOMINAL Conditions: Radon Conc 26.3 pCi/L Rel. Hum 59.1 % Temp. 29.0 F

Date Start: 11/11/16 Date Stop: 11/14/16 Date Start: _____ Date Stop: _____

Time Start: 0958 Time Stop: 0958 Time Start: _____ Time Stop: _____

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

7802911 thro 7802913

GS 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**



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 19

Names of Schools:

1. Wood Acres Elementary School
2. Walt Whitman High School
3. East Silver Spring Elementary School

	Date	Initials
Radon Test Kits Deployed	11/14/16	JM
Radon Test Kits Collected	11/17/16	JM
Radon Test Kits Shipped to Lab*	11/18/16	JM
Radon Test Kits Received by Lab*	11/21/16	JM

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 19

Names of Schools:

1. Montgomery Blair High School
2. Springbrook High School
3. Sligo Middle School
4. Einstein High School
5. John F. Kennedy High School
6. Blair Ewing Center
7. Rock Terrace School
8. Thomas Wootton High School
9. Fields Road Elementary School

	Date	Initials
Radon Test Kits Deployed	11/15/16	JM
Radon Test Kits Collected	11/18/16	JM
Radon Test Kits Shipped to Lab*	11/18/16	JM
Radon Test Kits Received by Lab*	11/21/16	JM

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



MCPS RADON TESTING

Executive Summary: Thomas Wootton High School

Date of Test Report:	10/20/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	6
# Rooms \geq 4.0 pCi/L:	1
Low Value:	< 0.3
High Value:	6.6

Rooms with results \geq 4.0 pCi/L:
42B (6.6 pCi/L)

Project Status:
Post-remediation testing completed; additional remediation is required.



October 20, 2016

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

Re: **Radon Testing Services**
KCI Job # 12146341.54

Location: Thomas Wootton High School
2100 Wooten Parkway
Rockville, MD 20850

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 Thomas Wootton High School, located at 2100 Wootton Parkway in Rockville, Maryland 20850 (subject site).

Scope of Services:

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

KCI visited the site on September 27, 2016 and deployed six (6) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

KCI returned to the site on September 30, 2016 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

These tests represent:

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

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

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

Future periodic testing should be conducted during the heating season in ideal conditions as described below. According to AARST, *Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*, ideal testing conditions would be when the building is fully occupied and the heating system is active. For this test, the facility's HVAC system was operating in cooling mode; therefore, KCI concludes that this test was not conducted during ideal testing conditions.

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the 50s and high temperatures in the mid-60s to mid-70s. Maximum sustained winds ranged from 3-15 miles per hour. Average humidity ranged from 71 to 89 percent. Rain (1.83 inches in Gaithersburg, MD) was recorded on 9/29/16. The weather conditions during the testing period may have resulted in atypical radon test results for this facility.

Results:

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 pCi/L	42B	6.6
<4.0 pCi/L	See Attachment B	

Notes:

D- Duplicate sample

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

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

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

Sincerely,



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

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Radon Testing Results		
Thomas Wootton High School		
Test Period: 09/27/16-09/30/16		
Kit Number	Room / Area	Result
7714222	42	3.4
7714232	* 41 (Tampered)	< 0.3
7714237	41A	< 0.3
7714221	41B	< 0.3
7714226	42A	2.0
7714234	42B	6.6

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

October 7, 2016

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
**THOMAS WOOTTON HIGH SCHOOL
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7714232	41	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7714237	41A	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7714221	41B	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7714222	42	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	3.4 ± 0.5	2016-10-03
7714226	42A	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	2.0 ± 0.4	2016-10-03
7714234	42B	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	6.6 ± 0.7	2016-10-03

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

October 7, 2016

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

MCPS Radon

Phase 18 Office Blanks

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

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

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

October 12, 2016

**** LABORATORY ANALYSIS REPORT ****

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

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 176788

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

Date Start: 9/24/16 Date Stop: 9/26/16 Date Start: _____ Date Stop: _____

Time Start: 0758 Time Stop: 0758 Time Start: _____ Time Stop: _____

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

7769899, 7769884, 7769885, _____

7769889, 7769890, 7769891 _____

F3 Left

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

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

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

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

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

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

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 18

Name of Schools:

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

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

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 18

Name of Schools:

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

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

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

RADON SCREENING SURVEY – FOLLOW-UP WOOTTON HIGH SCHOOL

2100 Wootton Parkway, Rockville Maryland 20850

EXECUTIVE SUMMARY

Date of Test Report:	4/11/16 Follow-Up
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	23
# Rooms \geq 4.0 pCi/L:	2
Low Value:	<0.4
High Value:	4.9
Confirmed Rooms \geq 4.0 pCi/L US EPA Action Level	3

Summary of Sampling Events \geq 4.0 pCi/L

Room	Result (pCi/L) 3/3/16 (Rev 1 Initial)	Result (pCi/L) 4/11/16 Follow-Up	Average Result (pCi/L)
41A	7.3	3.2	5.3
41	6.2	4.4	5.3
41B	4.8	4.9	4.9
100	--- Missing	1.0	1.0
100I	--- Missing	0.5	0.5
103	--- Missing	0.8	0.8
103H	--- Missing	0.8	0.8
103L	--- Missing	<0.4	<0.4
103K	---Missing	<0.4	<0.4
104	--- Missing	0.6	0.6
10M	--- Missing	Unoccupied	n/a
112	--- Missing	<0.4	<0.4
124	--- Missing	<0.4	<0.4
125	--- Missing	<0.4	<0.4
143	--- Missing	0.7	0.7
144	--- Missing	0.5	0.5
146	--- Missing	<0.4	<0.4
147	--- Missing	1.2	1.2
153	1.1	--- Missing	1.1
163	--- Missing	0.7	0.7
193	--- Missing	3.8	3.8
208	--- Missing	0.9	0.9
230	--- Missing	<0.4	<0.4
24	--- Missing	2.1	2.1



MCPS RADON TESTING

Executive Summary: Thomas Wootton High School

Date of Test Report:	4/11/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	23
# Rooms \geq 4.0 pCi/L:	2
Low Value:	< 0.4
High Value:	4.9

Rooms with results \geq 4.0 pCi/L:
41B (4.9 pCi/L), 41 (4.4 pCi/L)

Project Status:

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



April 11, 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 # 12146341.32

Location: Thomas Wootton High School
2100 Wooten Parkway
Rockville, MD 20850

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 Thomas Wootton High School, located at 2100 Wootton Parkway in Rockville, Maryland 20850 (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 March 14, 2016 and deployed twenty six (26) 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 March 17, 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	41B	4.9
	41	4.4
< 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 (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 12 testing. Office blanks were not submitted under each school individually.

Radon Testing Results		
Wootton HS		
Test Period: 03/14/16-03/17/16		
Kit Number	Room / Area	Result
3029149	24	2.1
3029135	41	4.4
3029144	100	1.0
3029148	103	0.8
3029143	104	0.6
3029133	112	<0.4
3029074	124	<0.4
3029138	125	0.4
3029147	143	0.7
3029136	144	0.5
3029142	146	<0.4
3029141	147	1.2
3029150	* 153 (missing)	-
3029078	163	0.7
3029139	193	2.5
3029010	193	2.1
3029132	193	3.8
3029146	193	2.8
3029077	208	0.9
3029079	230	<0.4
3029043	100I	0.5
3029137	103H	0.8
3029134	103K	<0.4
3029140	103L	<0.4
3029131	41A	3.2
3029076	41B	4.9

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: Project # 12146341

KCI Technologies
936 Ridgebrook Rd
Sparks MD 21152

Wootton HS
2100 Wootton Pkwy
Rockville MD 20850

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3017659	3029147	03/14/2016 4:06 pm	03/17/2016 10:11 am	Unit 143 First Floor	0.7
3017660	3029136	03/14/2016 4:09 pm	03/17/2016 10:12 am	Unit 144 First Floor	0.5
3017661	3029142	03/14/2016 4:12 pm	03/17/2016 10:14 am	Unit 146 First Floor	<0.4
3017662	3029141	03/14/2016 4:16 pm	03/17/2016 10:16 am	Unit 147 First Floor	1.2
3017663	3029078	03/14/2016 4:22 pm	03/17/2016 10:22 am	Unit 163 First Floor	0.7
3017664	3029010	03/14/2016 5:05 pm	03/17/2016 10:29 am	Unit 193 First Floor Auditorium	2.1
3017665	3029077	03/14/2016 4:42 pm	03/17/2016 10:37 am	Unit 208 Second Floor	0.9
3017666	3029079	03/14/2016 4:47 pm	03/17/2016 10:40 am	Unit 230 Second Floor	<0.4
3017667	3029132	03/14/2016 5:06 pm	03/17/2016 10:28 am	Unit 193 First Floor Auditorium	3.8
3017668	3029148	03/14/2016 3:23 pm	03/17/2016 11:23 am	Unit 103 First Floor	0.8

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

Distributed by: KCI Technologies, Inc.

Date Received: 03/21/2016 Date Logged: 03/21/2016 Date Analyzed: 03/22/2016 Date Reported: 03/22/2016

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.

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: Project # 12146341

KCI Technologies
936 Ridgebrook Rd
Sparks MD 21152

Wootton HS
2100 Wootton Pkwy
Rockville MD 20850

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3017669	3029140	03/14/2016 3:30 pm	03/17/2016 11:24 am	Unit 103L First Floor	<0.4
3017670	3029134	03/14/2016 3:31 pm	03/17/2016 11:25 am	Unit 103K First Floor	<0.4
3017671	3029137	03/14/2016 3:32 pm	03/17/2016 11:27 am	Unit 103H First Floor	0.8
3017672	3029144	03/14/2016 3:35 pm	03/17/2016 11:17 am	Unit 100 First Floor	1.0
3017673	3029043	03/14/2016 3:38 pm	03/17/2016 11:18 am	Unit 100I First Floor	0.5
3017674	3029143	03/14/2016 3:41 pm	03/17/2016 11:28 am	Unit 104 First Floor	0.6
3017675	3029133	03/14/2016 3:50 pm	03/17/2016 11:30 am	Unit 112 First Floor	<0.4
3017676	3029074	03/14/2016 3:53 pm	03/17/2016 10:04 am	Unit 124 First Floor	<0.4
3017677	3029138	03/14/2016 3:55 pm	03/17/2016 10:07 am	Unit 125 First Floor	0.4
3017678	3029139	03/14/2016 5:07 pm	03/17/2016 10:31 am	Unit 193 First Floor Auditorium	2.5

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

Distributed by: KCI Technologies, Inc.

Date Received: 03/21/2016 Date Logged: 03/21/2016 Date Analyzed: 03/22/2016 Date Reported: 03/22/2016

Report Reviewed By: Christie Bates

Report Approved By: Carolyn D. Koke

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: Project # 12146341

KCI Technologies
936 Ridgebrook Rd
Sparks MD 21152

Wootton HS
2100 Wootton Pkwy
Rockville MD 20850

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3017679	3029146	03/14/2016 5:08 pm	03/17/2016 10:32 am	Unit 193 First Floor Auditorium	2.8
3017680	3029135	03/14/2016 5:37 pm	03/17/2016 11:40 am	Unit 41 Basement	4.4
3017681	3029131	03/14/2016 5:38 pm	03/17/2016 11:40 am	Unit 41A Basement	3.2
3017682	3029076	03/14/2016 5:38 pm	03/17/2016 11:40 am	Unit 41B Basement	4.9
3017683	3029149	03/14/2016 5:42 pm	03/17/2016 10:46 am	Unit 24 Basement Girls Dance Studio	2.1

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

Distributed by: KCI Technologies, Inc.

Date Received: 03/21/2016 Date Logged: 03/21/2016 Date Analyzed: 03/22/2016 Date Reported: 03/22/2016

Report Reviewed By: Christie Bates

Report Approved By: Carolyn D. Koke

Carolyn D. Koke, President, AccuStar Labs

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Radon Device Type Open Face Canister

Send Written Report To:

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

Site Tested:

Site Name: Woodton HS
 Address: 2100 Woodton Pkwy
 Address: Rockville
 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
	9147		143	1		71°	3/14/16	16:06	3/17/16	10:11	
	9136		144	1				16:09		10:12	
	9142		146	1				16:12		10:14	
	9141		147	1				16:16		10:16	
	9150		153	1	missing			16:19			
	9078		163	1				16:22		10:22	
	9010		193	1	auditorium			17:05		10:29	
	9077		208	2				16:42		10:37	
	9079		230	2				16:47		10:40	
	9132		193	1	auditorium			17:06		10:28	

Radon Device Type Open Face Canister

Send Written Report To:

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

Site Tested:

Site Name: ~~Wootton~~ Wootton Hs
 Address: 200 Wootton Pkwy.
 Address: Rockville
 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
	9148		103	1		71°	3/14/16	15:23	3/17/16	11:23	
	9140		103L	1				15:30		11:24	
	9134		103K	1				15:31		11:25	
	9137		103H	1				15:32		11:27	
	9144		100	1				15:35		11:17	
	91043		100I	1				15:38		11:18	
	9143		104	1				15:41		11:28	
	9133		112	1				15:50		11:30	
	91074		124	1				15:53		10:64	
	9138		125	1				15:55		10:07	

Radon Device Type Open Face Canister

Send Written Report To:

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

Site Tested:

Site Name: Wootton HS
 Address: 2100 Wootton Pkwy
 Address: [Blank]
 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: [Blank]
 Cert. Number: [Blank]
 Signature: [Blank]

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
	9139		193	1	auditorium	71°	3/14/16	17:07	3/17/16	10:31	
	9146		193	1	auditorium			17:08		10:32	
	9135		41	0				17:37		11:40	
	9131		41-A	0				17:38		11:40	
	9076		41-B	0				17:38		11:40	
	9149		24	0	Girls Dance studio			17:42		10:46	
	9074		124	1				15:58		10:04	
	9138		125	1				15:59		10:07	

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 Radon Phase 12 Office Blank

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3017546	3029151	03/14/2016 9:30 am 03/17/2016 9:30 am	Unit # 0 Office First Floor	<0.4

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

Distributed by: KCI Technologies, Inc.

Date Received: 03/21/2016 Date Logged: 03/21/2016 Date Analyzed: 03/21/2016 Date Reported: 03/22/2016

Report Reviewed By: Grace Heubling

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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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 Radon Phase 12 Office Blank

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3017545	3029152	03/15/2016 9:30 am 03/18/2016 9:30 am	Unit # 0 Office First Floor	<0.4

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

Distributed by: KCI Technologies, Inc.

Date Received: 03/21/2016 Date Logged: 03/21/2016 Date Analyzed: 03/21/2016 Date Reported: 03/22/2016

Report Reviewed By: Grace Heubling

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.

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 County: _____
 Site Address: Transit State: _____ Zip: _____
 City: _____ Email: _____

Projects Contact Name: Don Coale Phone: _____

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	↓	↓	↓

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
	<0.4
	<0.4
	<0.4
	<0.4

1/27/2016

KCI Technologies, Inc.

3010588 3028953 ACPC275B EXP12/31/2018

Both Placed by and Retrieved by signatures are required

Canisters placed by _____ # _____

Canisters retrieved by _____ # _____

Owner waives confidentiality by signing here _____ Date 1/27/16

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

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

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.

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MCPS RADON TESTING

Executive Summary: Thomas Wootton High School

Date of Test Report:	3/3/2016 (Rev 1)
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	130
# Rooms \geq 4.0 pCi/L:	3
Low Value:	< 0.3
High Value:	7.3

Rooms with results \geq 4.0 pCi/L:

Room 41A (7.3 pCi/L), Room 41 (6.2 pCi/L), Room 41B (4.8 pCi/L)

Project Status:

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

Initial testing completed; missing or compromised samples need re-test.



March 3, 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 # 12146341.26

Location: Thomas Wootton High School
2100 Wooten Parkway
Rockville, MD 20850

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 Thomas Wootton High School, located at 2100 Wootton Parkway in Rockville, Maryland 20850 (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 1, 2016 and deployed one hundred sixty-seven (167) 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 4, 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	41A	7.3
	41	6.2
	41B	4.8
< 4.0 pCi/L	See Attachment B	

Notes:

D- Duplicate sample

The field blanks, office blanks, and lab transit blanks had test results of less than the laboratory detection limit of 0.3 pCi/L, except for one office blank and one field blank which had results indicating low levels of radon. The results for the blank samples could be attributable to compromised test kit seals or laboratory error. 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		
Thomas Wootton High School		
Test Period: 02/01/16-02/04/16		
Kit Number	Room / Area	Result
7730953	13	< 0.3
7730948	15	< 0.3
7730954	16	0.7
7730968	18	1.1
7730947	19	0.6
7730967	19	1.1
7730949	21	0.9
7730919	24	2.2
7730943	30	2.1
7730944	30	2.2
7730945	30	2.3
7730925	41	6.2
7730923	42	< 0.3
7730933	42	0.8
7730931	43	2.5
7730959	100	1.6
7730918	102	1.0
7730952	102	0.7
7730961	105	0.6
7730989	113	0.8
7730975	118	< 0.3
7730988	119	0.8
7730969	123	< 0.3
7730993	128	0.8
7730999	130	< 0.3
7730982	131	< 0.3
7730976	141	< 0.3
7730997	142	0.7
7730977	145	1.3
7731000	146	1.5
7730985	148	1.2
7730970	149	2.1
7730978	151	< 0.3
7730980	152	0.7
7730992	153	1.1
7731014	154	< 0.3
7731013	155	0.7
7730979	156	< 0.3
7730973	160	< 0.3
7730974	161	0.7
7731030	162	1.4
7731033	166	1.6
7731021	167	0.9
7731027	168	< 0.3
7731026	169	1.0
7731034	173	1.4

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Thomas Wootton High School		
Test Period: 02/01/16-02/04/16		
Kit Number	Room / Area	Result
7731022	174	0.7
7731020	175	1.0
7731028	176	0.9
7731023	180	0.7
7731019	181	1.0
7731012	182	0.9
7731024	183	1.6
7731018	184	0.6
7731011	185	1.7
7731004	186	0.7
7731003	187	0.6
7730901	188	0.8
7730960	189	1.1
7731008	193	2.4
7731009	193	2.7
7731010	193	2.9
7731062	200	0.6
7731085	203	0.9
7731088	204	0.8
7731080	208	0.7
7731083	209	< 0.3
7731075	211	0.8
7731068	212	< 0.3
7731048	213	0.8
7731082	215	0.6
7731076	216	< 0.3
7731038	231	< 0.3
7731032	249	0.6
7731047	250	< 0.3
7731002	251	< 0.3
7731051	252	< 0.3
7731040	253	< 0.3
7731045	254	< 0.3
7731041	255	0.9
7731044	268	0.6
7731039	269	< 0.3
7731016	279	< 0.3
7731043	279	0.7
7731001	280	0.6
7730937	281	0.6
7731042	282	0.6
7731061	283	1.1
7730962	285	0.9
7730908	* 100 (Missing)	-
7730958	100A	1.5
7730907	100B	1.2
7730909	100C	1.3
7730903	100D	0.9
7730902	100E	0.8
7730904	100H	1.4

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Thomas Wootton High School		
Test Period: 02/01/16-02/04/16		
Kit Number	Room / Area	Result
7730906	* 100I (Missing)	-
7730915	* 103 (Missing)	-
7730941	103C	0.8
7730911	103D	1.0
7730913	103E	< 0.3
7730929	103E	0.7
7730914	103F	1.0
7730939	103F	0.9
7730935	103G	0.5
7730934	* 103H (Missing)	-
7730942	103I	0.9
7730912	103KK	0.8
7730930	* 103L (Missing)	-
7730940	* 104 (Missing)	-
7730927	104A	0.7
7730905	* 10M (Missing)	-
7730991	* 112 (Missing)	-
7730987	118A	< 0.3
7730995	* 124 (Missing)	-
7730986	* 125 (Missing)	-
7730971	130A	0.6
7730957	13B	0.7
7730972	* 143 (Missing)	-
7730981	* 144 (Missing)	-
7730994	* 146 (Missing)	-
7730990	* 147 (Missing)	-
7730983	* 153 (Missing)	-
7731029	* 163 (Missing)	-
7731017	185A	0.9
7730910	189A	0.6
7731007	* 193 (Missing)	-
7731086	* 208 (Missing)	-
7730938	20A	1.1
7731067	211A	< 0.3
7731031	* 230 (Missing)	-
7731037	230A	< 0.3
7730950	* 24 (Missing)	-
7730924	41A	7.3
7730926	41B	4.8
7730932	42B	1.1
7730955	5C	0.6
7730956	CAFETERIA	< 0.3
7730963	CAFETERIA	< 0.3
7730964	CAFETERIA	0.7
7730965	CAFETERIA	< 0.3
7730921	GYM	0.7
7730922	GYM	0.9
7731053	ML648	0.7
7731059	ML658	0.7
7731046	ML659	< 0.3

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Thomas Wootton High School		
Test Period: 02/01/16-02/04/16		
Kit Number	Room / Area	Result
7731054	* ML660 (Missing)	-
7731060	ML745	0.6
7731052	* MS052 (Tampered)	< 0.3

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Thomas Wootton High School		
Test Period: 02/01/16-02/04/16		
Kit Number	QC Type	Result
7730936	D (100H)	1.8
7730917	D (102)	1.0
7730916	D (103I)	1.2
7730928	* D (103K:Missing)	-
7730966	D (105)	0.6
7730998	D (143)	1.1
7730984	D (149)	1.9
7731035	D (161)	< 0.3
7731025	D (169)	0.8
7731005	D (186)	1.1
7731006	D (186)	0.5
7731036	D (255)	< 0.3
7730946	* D (41A:Missing)	-
7730951	FB (102)	< 0.3
7730996	FB (149)	< 0.3
7731084	FB (200)	< 0.3
7731069	OB (0)	0.7
7731070	OB (0)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

March 3, 2016 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
**THOMAS WOOTTON HIGH SCHOOL
 MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7731069	0	2016-02-01 @ 9:00 am	2016-02-04 @ 11:00 am	0.7 ± 0.3	2016-02-09
7731070	0	2016-02-01 @ 9:00 am	2016-02-04 @ 11:00 am	< 0.3	2016-02-09
7730908	100	@	@		
7730959	100	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	1.6 ± 0.4	2016-02-09
7730958	100A	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	1.5 ± 0.4	2016-02-08
7730907	100B	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	1.2 ± 0.3	2016-02-08
7730909	100C	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	1.3 ± 0.4	2016-02-09
7730903	100D	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	0.9 ± 0.4	2016-02-09
7730902	100E	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	0.8 ± 0.3	2016-02-09
7730936	100H	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	1.8 ± 0.4	2016-02-08
7730904	100H	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	1.4 ± 0.4	2016-02-09
7730906	100I	@	@		
7730951	102	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	< 0.3	2016-02-08
7730952	102	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	0.7 ± 0.4	2016-02-09
7730917	102	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	1.0 ± 0.4	2016-02-09
7730918	102	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	1.0 ± 0.4	2016-02-09
7730915	103	@	@		
7730941	103C	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	0.8 ± 0.4	2016-02-09
7730911	103D	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	1.0 ± 0.4	2016-02-09
7730913	103E	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	< 0.3	2016-02-09
7730929	103E	2016-02-01 @ 10:00 am	2016-02-04 @ 8:00 am	0.7 ± 0.4	2016-02-09
7730939	103F	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	0.9 ± 0.4	2016-02-09
7730914	103F	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	1.0 ± 0.4	2016-02-09
7730935	103G	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	0.5 ± 0.3	2016-02-09
7730934	103H	@	@		
7730916	103I	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	1.2 ± 0.3	2016-02-08
7730942	103I	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	0.9 ± 0.4	2016-02-09
7730928	103K	@	@		
7730912	103KK	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	0.8 ± 0.3	2016-02-08
7730930	103L	@	@		
7730940	104	@	@		
7730927	104A	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	0.7 ± 0.3	2016-02-08
7730966	105	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	0.6 ± 0.3	2016-02-08
7730961	105	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	0.6 ± 0.3	2016-02-09
7730905	10M	@	@		
7730991	112	@	@		
7730989	113	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	0.8 ± 0.4	2016-02-09

March 3, 2016
** LABORATORY ANALYSIS REPORT **

Radon test result report for:
**THOMAS WOOTTON HIGH SCHOOL
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7730975	118	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	< 0.3	2016-02-09
7730987	118A	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	< 0.3	2016-02-08
7730988	119	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	0.8 ± 0.4	2016-02-09
7730969	123	2016-02-01 @ 12:00 pm	2016-02-04 @ 8:00 am	< 0.3	2016-02-08
7730995	124	@	@		
7730986	125	@	@		
7730993	128	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	0.8 ± 0.4	2016-02-09
7730953	13	2016-02-01 @ 9:00 am	2016-02-04 @ 7:00 am	< 0.3	2016-02-08
7730971	130A	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	0.6 ± 0.3	2016-02-08
7730982	131	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	< 0.3	2016-02-08
7730999	131	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	< 0.3	2016-02-08
7730957	13B	2016-02-01 @ 9:00 am	2016-02-04 @ 7:00 am	0.7 ± 0.3	2016-02-08
7730976	141	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	< 0.3	2016-02-08
7730997	142	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	0.7 ± 0.3	2016-02-08
7730972	143	@	@		
7730998	143	2016-02-01 @ 11:00 am	2016-02-04 @ 8:00 am	1.1 ± 0.4	2016-02-09
7730981	144	@	@		
7730977	145	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	1.3 ± 0.4	2016-02-09
7730994	146	@	@		
7731000	146	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	1.5 ± 0.4	2016-02-08
7730990	147	@	@		
7730985	148	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	1.2 ± 0.3	2016-02-08
7730984	149	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	1.9 ± 0.4	2016-02-08
7730996	149	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	< 0.3	2016-02-08
7730970	149	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	2.1 ± 0.5	2016-02-09
7730948	15	2016-02-01 @ 9:00 am	2016-02-04 @ 7:00 am	< 0.3	2016-02-08
7730978	151	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	< 0.3	2016-02-08
7730980	152	2016-02-01 @ 11:00 am	2016-02-04 @ 8:00 am	0.7 ± 0.3	2016-02-08
7730983	153	@	@		
7730992	153	2016-02-01 @ 11:00 am	2016-02-04 @ 8:00 am	1.1 ± 0.4	2016-02-08
7731014	154	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	< 0.3	2016-02-08
7731013	155	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	0.7 ± 0.3	2016-02-09
7730979	156	2016-02-01 @ 11:00 am	2016-02-04 @ 8:00 am	< 0.3	2016-02-08
7730954	16	2016-02-01 @ 9:00 am	2016-02-04 @ 7:00 am	0.7 ± 0.4	2016-02-09
7730973	160	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	< 0.3	2016-02-08
7731035	161	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	< 0.3	2016-02-08
7730974	161	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	0.7 ± 0.4	2016-02-09

March 3, 2016 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
**THOMAS WOOTTON HIGH SCHOOL
 MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7731030	162	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	1.4 ± 0.4	2016-02-08
7731029	163	@	@		
7731033	166	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	1.6 ± 0.4	2016-02-09
7731021	167	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	0.9 ± 0.3	2016-02-08
7731027	168	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	< 0.3	2016-02-08
7731025	169	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	0.8 ± 0.3	2016-02-08
7731026	169	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	1.0 ± 0.3	2016-02-08
7731034	173	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	1.4 ± 0.4	2016-02-09
7731022	174	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	0.7 ± 0.3	2016-02-08
7731020	175	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	1.0 ± 0.3	2016-02-08
7731028	176	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	0.9 ± 0.3	2016-02-08
7730968	18	2016-02-01 @ 9:00 am	2016-02-04 @ 7:00 am	1.1 ± 0.3	2016-02-08
7731023	180	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	0.7 ± 0.3	2016-02-08
7731019	181	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	1.0 ± 0.4	2016-02-09
7731012	182	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	0.9 ± 0.4	2016-02-09
7731024	183	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	1.6 ± 0.4	2016-02-09
7731018	184	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	0.6 ± 0.4	2016-02-09
7731011	185	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	1.7 ± 0.4	2016-02-09
7731017	185A	2016-02-01 @ 11:00 am	2016-02-04 @ 9:00 am	0.9 ± 0.3	2016-02-09
7731004	186	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	0.7 ± 0.3	2016-02-08
7731005	186	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	1.1 ± 0.3	2016-02-08
7731006	186	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	0.5 ± 0.3	2016-02-08
7731003	187	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	0.6 ± 0.4	2016-02-09
7730901	188	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	0.8 ± 0.4	2016-02-09
7730960	189	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	1.1 ± 0.3	2016-02-08
7730910	189A	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	0.6 ± 0.3	2016-02-09
7730967	19	2016-02-01 @ 9:00 am	2016-02-04 @ 7:00 am	1.1 ± 0.3	2016-02-08
7730947	19	2016-02-01 @ 9:00 am	2016-02-04 @ 7:00 am	0.6 ± 0.4	2016-02-09
7731007	193	@	@		
7731009	193	2016-02-01 @ 10:00 am	2016-02-04 @ 10:00 am	2.7 ± 0.4	2016-02-08
7731008	193	2016-02-01 @ 10:00 am	2016-02-04 @ 10:00 am	2.4 ± 0.4	2016-02-09
7731010	193	2016-02-01 @ 10:00 am	2016-02-04 @ 10:00 am	2.9 ± 0.5	2016-02-09
7731084	200	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	< 0.3	2016-02-08
7731062	200	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	0.6 ± 0.4	2016-02-09
7731085	203	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	0.9 ± 0.4	2016-02-09
7731088	204	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	0.8 ± 0.4	2016-02-09
7731086	208	@	@		

March 3, 2016 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
**THOMAS WOOTTON HIGH SCHOOL
 MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7731080	208	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	0.7 ± 0.3	2016-02-08
7731083	209	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	< 0.3	2016-02-09
7730938	20A	2016-02-01 @ 9:00 am	2016-02-04 @ 7:00 am	1.1 ± 0.3	2016-02-08
7730949	21	2016-02-01 @ 9:00 am	2016-02-04 @ 8:00 am	0.9 ± 0.4	2016-02-09
7731075	211	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	0.8 ± 0.4	2016-02-09
7731067	211A	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	< 0.3	2016-02-09
7731068	212	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	< 0.3	2016-02-09
7731048	213	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	0.8 ± 0.4	2016-02-09
7731082	213	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	0.6 ± 0.4	2016-02-09
7731076	216	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	< 0.3	2016-02-09
7731031	230	@	@		
7731037	230A	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	< 0.3	2016-02-09
7731038	231	2016-02-01 @ 12:00 pm	2016-02-04 @ 10:00 am	< 0.3	2016-02-08
7730950	24	@	@		
7730919	24	2016-02-01 @ 9:00 am	2016-02-04 @ 8:00 am	2.2 ± 0.4	2016-02-09
7731032	249	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	0.6 ± 0.4	2016-02-09
7731047	250	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	< 0.3	2016-02-09
7731002	251	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	< 0.3	2016-02-09
7731051	252	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	< 0.3	2016-02-09
7731040	253	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	< 0.3	2016-02-09
7731045	254	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	< 0.3	2016-02-08
7731036	255	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	< 0.3	2016-02-09
7731041	255	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	0.9 ± 0.4	2016-02-09
7731044	268	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	0.6 ± 0.3	2016-02-08
7731039	269	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	< 0.3	2016-02-09
7731043	279	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	0.7 ± 0.3	2016-02-08
7731016	279	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	< 0.3	2016-02-08
7731001	280	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	0.6 ± 0.4	2016-02-09
7730937	281	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	0.6 ± 0.3	2016-02-08
7731042	282	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	0.6 ± 0.4	2016-02-09
7731061	283	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	1.1 ± 0.4	2016-02-09
7730962	285	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	0.9 ± 0.4	2016-02-09
7730943	30	2016-02-01 @ 9:00 am	2016-02-04 @ 7:00 am	2.1 ± 0.4	2016-02-08
7730944	30	2016-02-01 @ 9:00 am	2016-02-04 @ 7:00 am	2.2 ± 0.4	2016-02-08
7730945	30	2016-02-01 @ 9:00 am	2016-02-04 @ 8:00 am	2.3 ± 0.4	2016-02-08
7730925	41	2016-02-01 @ 9:00 am	2016-02-04 @ 7:00 am	6.2 ± 0.6	2016-02-08
7730946	41A	@	@		

March 3, 2016 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
**THOMAS WOOTTON HIGH SCHOOL
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7730924	41A	2016-02-01 @ 9:00 am	2016-02-04 @ 8:00 am	7.3 ± 0.7	2016-02-08
7730926	41B	2016-02-01 @ 9:00 am	2016-02-04 @ 7:00 am	4.8 ± 0.6	2016-02-09
7730923	42	2016-02-01 @ 9:00 am	2016-02-04 @ 7:00 am	< 0.3	2016-02-08
7730933	42	2016-02-01 @ 9:00 am	2016-02-04 @ 8:00 am	0.8 ± 0.3	2016-02-08
7730932	42B	2016-02-01 @ 9:00 am	2016-02-04 @ 8:00 am	1.1 ± 0.4	2016-02-09
7730931	43	2016-02-01 @ 9:00 am	2016-02-04 @ 7:00 am	2.5 ± 0.4	2016-02-08
7730955	5C	2016-02-01 @ 9:00 am	2016-02-04 @ 7:00 am	0.6 ± 0.4	2016-02-09
7730956	CAFETERIA	2016-02-01 @ 9:00 am	2016-02-04 @ 7:00 am	< 0.3	2016-02-08
7730963	CAFETERIA	2016-02-01 @ 9:00 am	2016-02-04 @ 7:00 am	< 0.3	2016-02-08
7730964	CAFETERIA	2016-02-01 @ 9:00 am	2016-02-04 @ 7:00 am	0.7 ± 0.3	2016-02-08
7730965	CAFETERIA	2016-02-01 @ 9:00 am	2016-02-04 @ 7:00 am	< 0.3	2016-02-08
7730921	GYM	2016-02-01 @ 10:00 am	2016-02-04 @ 8:00 am	0.7 ± 0.3	2016-02-08
7730922	GYM	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	0.9 ± 0.4	2016-02-09

March 3, 2016 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
**THOMAS WOOTTON HIGH SCHOOL
PORTABLES**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7731053	ML648	2016-02-01 @ 12:00 pm	2016-02-04 @ 10:00 am	0.7 ± 0.3	2016-02-08
7731059	ML658	2016-02-01 @ 12:00 pm	2016-02-04 @ 10:00 am	0.7 ± 0.4	2016-02-09
7731046	ML659	2016-02-01 @ 12:00 pm	2016-02-04 @ 10:00 am	< 0.3	2016-02-09
7731054	ML660	@	@		
7731060	ML745	2016-02-01 @ 12:00 pm	2016-02-04 @ 10:00 am	0.6 ± 0.3	2016-02-08
7731052	MS052	2016-02-01 @ 12:00 pm	2016-02-04 @ 10:00 am	< 0.3	2016-02-08

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February 23, 2016
LABORATORY ANALYSIS REPORT

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

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

February
15,
2016

**LABORATORY ANALYSIS
REPORT ****

Spike Sample Laboratory Results

Radon test result report for:
MCPS

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCF Technologies Inc. Job Number 173704

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

Date Start: 11/30/16 Date Stop: 2/1/16 Date Start: _____ Date Stop: _____

Time Start: 0926 Time Stop: 0926 Time Start: _____ Time Stop: _____

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

7718281, 7718282, 7718291, _____

7718288, 7718289, 7718273 _____

ε3 Left

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

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

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

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

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

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

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 7 (2-1-2016)

Name of School/Facility:

- | | | |
|----------------------------|-----------------------------|----------------------------|
| 1. Wyngate E.S. | 10. Bethesda Depot | 18. Stone Mill E.S. |
| 2. Seven Locks E.S. | 11. Bethesda Trans Depot | 19. Strawberry Knoll E.S. |
| 3. Takoma Park M.S. | 12. Sligo M.S. | 20. Shady Grove M.S. |
| 4. Somerset E.S. | 13. Stonegate E.S. | 21. Washington Grove E.S. |
| 5. Silver Spring Int. M.S. | 14. Randolph Transportation | 22. Sherwood E.S. |
| 6. Sligo Creek E.S. | 15. Earl B. Wood M.S. | 23. Woodfield E.S. |
| 7. Tilden M.S. | 16. Sargent Shriver E.S. | 24. Taylor Learning Center |
| 8. Tilden Center | 17. Thomas Wooten H.S. | 25. Kingsley Wilderness |
| 9. Bethesda Annex | | |

	Date	Initials
Radon Test Kits Deployed	2/1/16	JM
Radon Test Kits Collected	2/4/16	JM
Radon Test Kits Shipped to Lab*	2/4/16	JM
Radon Test Kits Received by Lab*	2/8/16	JM

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 7 (2-2-2016)

Name of School/Facility:

- | | |
|--------------------------------|--------------------------------|
| 1. Concord Center | 8. Food & Nutritional Services |
| 2. Lynnbrook Center | 9. Fairland Center |
| 3. Carver (CESC) | 10. Redland M.S. (retest) |
| 4. Spring Mill (area 1 Office) | 11. Clarksburg Trans Depot |
| 5. Wheaton H.S | 12. Clarksburg Main Depot |
| 6. Montrose Center | 13. Clarksburg E.S. |
| 7. West Farm Trans Depot | |

	Date	Initials
Radon Test Kits Deployed	2/2/16	JM
Radon Test Kits Collected	2/5/16	JM
Radon Test Kits Shipped to Lab*	2/5/16	JM
Radon Test Kits Received by Lab*	2/9/16	JM

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