



**MCPS RADON TESTING – EXECUTIVE SUMMARY**

Site Name	Damascus 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	121
# Rooms $\geq$ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.1 pCi/L

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



April 6, 2022

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

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

Location: Damascus HS  
25921 Ridge Rd.  
Damascus, MD 20872

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 Damascus HS, located at 25921 Ridge Rd. Damascus, MD 20871 (subject site).

**Scope of Services:**

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

KCI visited the site on February 15, 2022 and deployed one hundred and thirty seven (137) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

KCI returned to the site on February 18, 2022 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc.

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

**Evaluation of Testing Conditions:**

These tests represent:

- Follow-up to post-mitigation biennial testing.

These tests were conducted to:

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

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the 20s and high temperatures ranged from the high 30s to the high 40s Fahrenheit. Maximum sustained winds ranged from 5-18 miles per hour. Average humidity was around 15% with 1.5 inches of precipitation (rain) was recorded during testing period.

**Results:**

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

The results of the radon test analysis indicated the following:

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

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

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

Sincerely,



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

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

# ATTACHMENT A

## Floor Plan With Test Locations

# ATTACHMENT B

## Radon Test Summary Spreadsheet

**Table Notes:**

AC- Activated Charcoal

ACI- Air Check, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

OC- Quality Control

Table 1- Radon Testing Results		
Damascus HS		
Test Period: 02/15/2022 - 02/18/2022		
Kit Number	Room / Area	Result
11122636	1	< 0.3
11122637	2	< 0.3
11122640	2	< 0.3
11122662	2	< 0.3
11123894	3	< 0.3
11122663	4	< 0.3
11122678	5	< 0.3
11122671	7	< 0.3
11122680	8	< 0.3
11122688	9	< 0.3
11122681	10	< 0.3
11122631	11	< 0.3
11122630	12	0.5
11122620	51	< 0.3
11122623	52	< 0.3
11122604	102	< 0.3
11122605	102	< 0.3
11122606	102	< 0.3
11122608	102	< 0.3
11122669	103	< 0.3
11122674	103	< 0.3
11122689	104	< 0.3
11122621	105	< 0.3
11122611	108	< 0.3
11122690	108	< 0.3
11122699	108	< 0.3
11122673	111	< 0.3
11114407	112	< 0.3
11122683	113	< 0.3
11122682	114	< 0.3
11122687	115	< 0.3
11122622	116	1.1
11123896	117	< 0.3
11122664	118	< 0.3
11122676	119	< 0.3
11122686	119	< 0.3
11122617	120	< 0.3
11114423	121	< 0.3
11122659	130	< 0.3
11114403	131	< 0.3
11114404	132	0.6
11114401	133	< 0.3



Table 1- Radon Testing Results		
Damascus HS		
Test Period: 02/15/2022 - 02/18/2022		
Kit Number	Room / Area	Result
11114425	133	< 0.3
11114405	134	0.8
11122624	135	< 0.3
11114415	136	< 0.3
11114420	136	< 0.3
11114422	136	< 0.3
11122602	137	< 0.3
11122642	138	< 0.3
11122656	140	< 0.3
11122646	142	< 0.3
11122649	144	< 0.3
11122645	145	< 0.3
11122657	145	< 0.3
11122658	145	< 0.3
11122672	146	< 0.3
11123878	154	< 0.3
11123885	154	0.5
11123888	158	< 0.3
11123895	158	< 0.3
11123897	158	< 0.3
11122644	161	< 0.3
11122643	163	< 0.3
11122650	165	< 0.3
11122651	165	< 0.3
11122696	170	< 0.3
11122677	171	< 0.3
11122684	171	< 0.3
11122652	172	< 0.3
11122695	173	< 0.3
11122670	174	< 0.3
11122685	175	< 0.3
11122648	176	< 0.3
11122614	177	< 0.3
11122634	178	< 0.3
11122638	178	< 0.3
11122607	180	< 0.3
11122625	180	< 0.3
11123887	180	< 0.3
11122609	181	< 0.3
11122612	181	< 0.3
11122633	183	< 0.3
11122641	184	< 0.3

Table 1- Radon Testing Results		
Damascus HS		
Test Period: 02/15/2022 - 02/18/2022		
Kit Number	Room / Area	Result
11123899	207	< 0.3
11122615	212	< 0.3
11123861	218	< 0.3
11123886	218	< 0.3
11122628	224	< 0.3
11122629	233	< 0.3
11122618	238	< 0.3
11122666	103 CLASSROOM	< 0.3
11122679	103 OFFICE	< 0.3
11122667	104 OFFICE	< 0.3
11122675	104 OFFICE	< 0.3
11122668	108 OFFICE	< 0.3
11114406	112 COMPUTER ROOM	1.1
11122665	118 OFFICE	< 0.3
11122619	135 OFFICE	< 0.3
11122693	136 ADMIN SECRETARY	< 0.3
11114416	136 ASSISTANT PRINCIPAL	< 0.3
11114418	136 ASSISTANT PRINCIPAL	< 0.3
11114421	136 ATTENDANCE	< 0.3
11122692	136 CONFERENCE	0.5
11114419	136 OFFICE	< 0.3
11114410	136 PRINCIPAL	0.6
11114402	137 OFFICE	< 0.3
11114409	137 OFFICE	< 0.3
11114417	137 OFFICE	< 0.3
11114424	137 OFFICE	< 0.3
11122601	137 OFFICE	< 0.3
11122603	137 OFFICE	< 0.3
11122647	144 OFFICE	< 0.3
11122660	171 OFFICE	< 0.3
11122698	171 OFFICE	< 0.3
11122653	171 WORK ROOM	< 0.3
11122661	171 WORK ROOM	< 0.3
11122632	50C	< 0.3
11122697	AUDITORIUM	0.5
11122700	AUDITORIUM	0.5
11122610	AUX GYM	< 0.3
11122613	AUX GYM	< 0.3
11123900	BUILDING SERVICES MANAGER	0.6
11122654	BUSINESS MANAGER	< 0.3
11114412	CAFETERIA	< 0.3
11122694	CAFETERIA	< 0.3

Table 1- Radon Testing Results		
Damascus HS		
Test Period: 02/15/2022 - 02/18/2022		
Kit Number	Room / Area	Result
11122655	FINANCIAL ASSISTANT	< 0.3
11122627	GIRLS LOCKER ROOM	< 0.3
11114408	HEALTH ROOM	0.7
11114414	HR ASSISTANT PRINCIPAL	< 0.3
11122691	KITCHEN OFFICE	< 0.3
11122626	MAIN GYM	< 0.3
11122635	MAIN GYM	< 0.3
11114413	NURSE	< 0.3
11122639	SPECIAL ED CONFERENCE	< 0.3
11114411	STAFF LOUNGE	< 0.3
11123893	TECH BOOTH	< 0.3

Table 2- Radon Testing Results			
Damascus HS			
Test Period: 02/15/2022 - 02/18/2022			
Kit Number	QC Type	Room / Area	Result
11114420	D	136	< 0.3
11114422	FB	136	< 0.3
11114401	D	133	< 0.3
11122605	D	102	< 0.3
11122675	D	104 office	< 0.3
11122676	D	119	< 0.3
11122653	D	171 work room	< 0.3
11122651	FB	165	< 0.3
11122657	D	145	< 0.3
11122658	FB	145	< 0.3
11122662	D	2	< 0.3
11122634	D	178	< 0.3
11122625	D	180	< 0.3
11123886	D	218	< 0.3
11123895	D	158	< 0.3
11123897	FB	158	< 0.3
11131660	OB	OFFICE BLANK	< 0.3
11131661	TB	TRAVEL BLANK	< 0.3



# ATTACHMENT C

## Laboratory Analytical Results

Radon test result report for:  
**DAMASCUS HS**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11122636	1	2022-02-15 @ 11:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122681	10	2022-02-15 @ 11:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122608	102	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122606	102	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122605	102	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122604	102	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122669	103	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122674	103	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122666	103 CLASSROOM	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122679	103 OFFICE	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122689	104	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122667	104 OFFICE	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122675	104 OFFICE	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122621	105	2022-02-15 @ 1:00 pm	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122699	108	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122611	108	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122690	108	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122668	108 OFFICE	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122631	11	2022-02-15 @ 11:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122673	111	2022-02-15 @ 10:00 am	2022-02-18 @ 11:00 am	< 0.3	2022-02-22
11114407	112	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11114406	112 COMPUTER ROOM	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	1.1 ± 0.3	2022-02-22
11122683	113	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122682	114	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122687	115	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122622	116	2022-02-15 @ 1:00 pm	2022-02-18 @ 9:00 am	1.1 ± 0.3	2022-02-22
11123896	117	2022-02-15 @ 1:00 pm	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122664	118	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122665	118 OFFICE	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122686	119	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122676	119	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122630	12	2022-02-15 @ 11:00 am	2022-02-18 @ 10:00 am	0.5 ± 0.3	2022-02-22
11122617	120	2022-02-15 @ 1:00 pm	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11114423	121	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122659	130	2022-02-15 @ 10:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11114403	131	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11114404	132	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	0.6 ± 0.3	2022-02-22

Radon test result report for:  
**DAMASCUS HS**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11114401	133	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11114425	133	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11114405	134	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	0.8 ± 0.3	2022-02-22
11122624	135	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122619	135 OFFICE	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11114415	136	2022-02-15 @ 8:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11114422	136	2022-02-15 @ 8:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11114420	136	2022-02-15 @ 8:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11122693	136 ADMIN SECRETARY	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11114418	136 ASSISTANT PRINCIPAL	2022-02-15 @ 8:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11114416	136 ASSISTANT PRINCIPAL	2022-02-15 @ 8:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11114421	136 ATTENDANCE	2022-02-15 @ 8:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11122692	136 CONFERENCE	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	0.5 ± 0.3	2022-02-22
11114419	136 OFFICE	2022-02-15 @ 8:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11114410	136 PRINCIPAL	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	0.6 ± 0.3	2022-02-22
11122602	137	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122601	137 OFFICE	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11114402	137 OFFICE	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11114417	137 OFFICE	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122603	137 OFFICE	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11114424	137 OFFICE	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11114409	137 OFFICE	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122642	138	2022-02-15 @ 11:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11122656	140	2022-02-15 @ 11:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11122646	142	2022-02-15 @ 11:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11122649	144	2022-02-15 @ 11:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11122647	144 OFFICE	2022-02-15 @ 11:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11122657	145	2022-02-15 @ 11:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122658	145	2022-02-15 @ 11:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122645	145	2022-02-15 @ 11:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122672	146	2022-02-15 @ 11:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123878	154	2022-02-15 @ 1:00 pm	2022-02-18 @ 11:00 am	< 0.3	2022-02-22
11123885	154	2022-02-15 @ 1:00 pm	2022-02-18 @ 11:00 am	0.5 ± 0.3	2022-02-22
11123895	158	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11123888	158	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11123897	158	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122644	161	2022-02-15 @ 11:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22



Radon test result report for:  
**DAMASCUS HS**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11122643	163	2022-02-15 @ 11:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122651	165	2022-02-15 @ 11:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122650	165	2022-02-15 @ 11:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122696	170	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122677	171	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122684	171	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122660	171 OFFICE	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122698	171 OFFICE	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122661	171 WORK ROOM	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122653	171 WORK ROOM	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122652	172	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122695	173	2022-02-15 @ 10:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122670	174	2022-02-15 @ 10:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122685	175	2022-02-15 @ 10:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122648	176	2022-02-15 @ 10:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122614	177	2022-02-15 @ 12:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122638	178	2022-02-15 @ 12:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122634	178	2022-02-15 @ 12:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122609	181	2022-02-15 @ 12:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122612	181	2022-02-15 @ 12:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122633	183	2022-02-15 @ 12:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122641	184	2022-02-15 @ 12:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122637	2	2022-02-15 @ 11:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122640	2	2022-02-15 @ 11:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122662	2	2022-02-15 @ 11:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11123899	207	2022-02-15 @ 12:00 pm	2022-02-18 @ 11:00 am	< 0.3	2022-02-22
11122615	212	2022-02-15 @ 12:00 pm	2022-02-18 @ 11:00 am	< 0.3	2022-02-22
11123886	218	2022-02-15 @ 1:00 pm	2022-02-18 @ 11:00 am	< 0.3	2022-02-22
11123861	218	2022-02-15 @ 1:00 pm	2022-02-18 @ 11:00 am	< 0.3	2022-02-22
11122628	224	2022-02-15 @ 1:00 pm	2022-02-18 @ 11:00 am	< 0.3	2022-02-22
11122629	233	2022-02-15 @ 12:00 pm	2022-02-18 @ 11:00 am	< 0.3	2022-02-22
11122618	238	2022-02-15 @ 12:00 pm	2022-02-18 @ 11:00 am	< 0.3	2022-02-22
11123894	3	2022-02-15 @ 1:00 pm	2022-02-18 @ 11:00 am	< 0.3	2022-02-22
11122663	4	2022-02-15 @ 11:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122678	5	2022-02-15 @ 11:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122632	50C	2022-02-15 @ 12:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122620	51	2022-02-15 @ 12:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22

Radon test result report for:  
**DAMASCUS HS**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11122623	52	2022-02-15 @ 12:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122671	7	2022-02-15 @ 11:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122680	8	2022-02-15 @ 11:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122688	9	2022-02-15 @ 11:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122700	AUDITORIUM	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	0.5 ± 0.3	2022-02-22
11122697	AUDITORIUM	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	0.5 ± 0.3	2022-02-22
11122613	AUX GYM	2022-02-15 @ 12:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122610	AUX GYM	2022-02-15 @ 12:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11123900	BUILDING SERVICES MANAGER	2022-02-15 @ 1:00 pm	2022-02-18 @ 8:00 am	0.6 ± 0.3	2022-02-22
11122654	BUSINESS MANAGER	2022-02-15 @ 11:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11114412	CAFETERIA	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122694	CAFETERIA	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122655	FINANCIAL ASSISTANT	2022-02-15 @ 11:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11122627	GIRLS LOCKER ROOM	2022-02-15 @ 12:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11114408	HEALTH ROOM	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	0.7 ± 0.3	2022-02-22
11114414	HR ASSISTANT PRINCIPAL	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11122691	KITCHEN OFFICE	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11122635	MAIN GYM	2022-02-15 @ 12:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122626	MAIN GYM	2022-02-15 @ 12:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11114413	NURSE	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11122639	SPECIAL ED CONFERENCE	2022-02-15 @ 11:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11114411	STAFF LOUNGE	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11123893	TECH BOOTH	2022-02-15 @ 1:00 pm	2022-02-18 @ 9:00 am	< 0.3	2022-02-22

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February 23, 2022

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

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Radon test result report for:  
**DAMASCUS HS**  
**MAIN**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11122607	180	2022-02-15 @ 9:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11122625	180	2022-02-15 @ 9:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11123887	180	2022-02-15 @ 9:00 am	2022-02-18 @ 10:00 am	< 0.3	2022-02-22

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

**EXPOSURE IN BOWSER-MORNER RADON CHAMBER**

CLIENT KCI Technologies, Inc. Job Number 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  $\mu$ R/h Elevation = 820 ft**

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

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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

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### Radon Test Kit Chain of Custody

**Project Name:** MCPS Radon – February 2022 Schools

**Name of Schools:**

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

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

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



**MCPS RADON TESTING - EXECUTIVE SUMMARY**

Site Name	Damascus High School
Date of Report	2/28/2020
Round of Testing	Initial <b>Follow-up</b> Post Remediation 2 year testing 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	5
# Rooms $\geq$ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.3 pCi/L

**Project Status**

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



2/28/2020

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

Re: Radon Testing Services

KCI Job #1214634188

**Location: Damascus High School**

25921 Ridge Road  
Damascus, Maryland 20872

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 Damascus High School, located at 25921 Ridge Road in Damascus, Maryland 20872 (subject site).

**SCOPE OF SERVICES**

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

KCI visited the site on 2/3/2020 and deployed nine (9) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

1. Rooms with missing test kits from the December 2019 testing period (i.e. test kit was deployed but not recovered),



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

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

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

KCI returned to the site on 2/6/2020 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Aircheck, Inc. for analysis by gamma-ray spectroscopy. Aircheck, Inc. is a NRSB certified analytical laboratory for radon analysis (certification #ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

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

These tests represent:

- Follow-up to initial testing.

These tests were conducted to:

- Evaluate radon concentrations at the facility.

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures ranged from the mid-30s to the low-50s; and high temperatures ranged from the upper-40s to the mid-60s. Maximum sustained winds ranged from 13-21 miles per hour. Average humidity was approximately 76%. A total of 1.09 Inches of rain were recorded during the testing period. The weather conditions during the testing period may have resulted in atypical radon test results for this facility.

**RESULTS**

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

The results of the radon test analysis indicated the following:

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

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

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

Sincerely,

Mr. Tyler P. McCleaf  
 Radon Measurement Provider  
 KCI Technologies, Inc.

Attachments:

A- Floor Plan with Test Locations

B - Tables 1-3, Radon Test Summary Spreadsheets

C- Laboratory Analytical Results

# ATTACHMENT A

## Floor Plan With Test Locations

### Floor Plan Legend

X-Sample Location (in red)

X- Previous Sample Location

1- Not Samled; No Ground Contact

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

3- Not Samled; High Humidity/Moisture

4- Not Samled; Bathroom/Hallway

# ATTACHMENT B

## Radon Test Summary Spreadsheet

**Table Notes:**

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Table 1- Radon Testing Results		
Damascus High School		
Test Period: 02/03/20-02/06/20		
Kit Number	Room / Area	Result
9339967	OUTSIDE FOOD STAND	1
9339970	OUTSIDE FOOD STAND	< 0.3
9339972	2	0.7
9339976	OUTSIDE FOOD STAND	1.3
9339977	163	< 0.3
9339978	147	0.7
9339982	232	< 0.3
9334909	OFFICE BLANK	<0.3
9334910	OFFICE BLANK	<0.3

Table 2- Radon Testing Results			
Damascus High School			
Test Period: 02/03/20-02/06/20			
Kit Number	QC Type	Room / Area	Result
9339976	D	OUTSIDE FOOD STAND	1.3
9339970	FB	OUTSIDE FOOD STAND	<0.3
9334902	TRANSIT BLANK	NA	<0.3

# ATTACHMENT C

## Laboratory Analytical Results



**P4792 / WILLIAM LYMAN**

<b>Kit Number</b>	<b>Start Date</b>	<b>Start Time</b>	<b>End Date</b>	<b>End Time</b>	<b>Temp.</b>	<b>Facility</b>	<b>Building</b>	<b>Room</b>	<b>Project ID</b>	<b>Floor</b>	<b>Result</b>
9339967	2020-02-03	10:00 am	2020-02-06	9:00 am	70		MAIN	OUTSIDE FOOD STAND	DAMASCUS HS	1	1.0
9339970	2020-02-03	10:00 am	2020-02-06	9:00 am	70			OUTSIDE FOOD STAND	DAMASCUS HS	1	< 0.3
9339972	2020-02-03	10:00 am	2020-02-06	10:00 am	70		MAIN	2	DAMASCUS HS	1	0.7
9339976	2020-02-03	10:00 am	2020-02-06	9:00 am	70			OUTSIDE FOOD STAND	DAMASCUS HS	1	1.3
9339977	2020-02-03	10:00 am	2020-02-06	12:00 pm	70		MAIN	163	DAMASCUS HS	1	< 0.3
9339978	2020-02-03	10:00 am	2020-02-06	9:00 am	70		MAIN	147	DAMASCUS HS	1	0.7
9339982	2020-02-03	10:00 am	2020-02-06	9:00 am	70		MAIN	232	DAMASCUS HS	1	< 0.3

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies, Inc. Job Number 194523

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

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

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

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

9341725 thru 9341733

52 cPt

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

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

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

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

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

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

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

Radon test result report for:

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9341725	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.9 $\pm$ 1.6	2020-02-26
9341730	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.1 $\pm$ 1.6	2020-02-26
9341728	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.9 $\pm$ 1.6	2020-02-26
9341726	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	25.8 $\pm$ 1.5	2020-02-26
9341731	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	25.1 $\pm$ 1.5	2020-02-26
9341729	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.2 $\pm$ 1.6	2020-02-26
9341727	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	27.2 $\pm$ 1.6	2020-02-26
9341732	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	27.3 $\pm$ 1.6	2020-02-26



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon 2019 Week 1 Retesting

Name of Schools:

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

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

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



**MCPS RADON TESTING - EXECUTIVE SUMMARY**

Site Name	Damascus High School
Date of Report	1/28/2020
Round of Testing	Initial Follow-up <b>Post Remediation</b> 2 year testing 5 year testing <b>HVAC Upgrade</b> Window Replacement New Addition New Facility
# of Rooms Tested	118
# Rooms $\geq$ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	2.1 pCi/L

**Project Status**

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



1/28/2020

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

Re: Radon Testing Services

KCI Job #12146341126

**Location: Damascus High School**

25921 Ridge Road  
Damascus, Maryland 20872

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 Damascus High School, located at 25921 Ridge Road in Damascus, Maryland 20872 (subject site).

**SCOPE OF SERVICES**

KCI conducted radon testing at the subject site to evaluate indoor radon levels relative to the USEPA's recommended action level of 4.0 picocuries per Liter (pCi/L) - the level at which EPA recommends that schools take action to reduce the level. KCI conducted the radon testing in accordance with American Association of Radon Scientists and Technologists (AARST) *Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*. A National Radon Proficiency Program (NRPP) Radon Measurement Specialist (certification #111004 RT) supervised the testing. Additional information on radon management and the health effects of radon exposure is available from <https://www.montgomeryschoolsmd.org/departments/facilities/maintenance/default.aspx?id=458858> or [www.epa.gov/radon](http://www.epa.gov/radon).

KCI visited the site on 12/9/2019 and deployed one-hundred and seventy-two (172) 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.

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As a quality control measure, KCI included duplicate samples, field blanks, lab transit blanks, and office blanks in accordance with AARST recommendations. In addition, KCI submitted sixty (60) test kits to Bowser-Morner, Inc. as spike samples. The spiked tests were exposed to a known radon concentration by Bowser-Morner, Inc. prior to being returned to the laboratory for analysis.

KCI returned to the site on 12/12/2019 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Aircheck, Inc. for analysis by gamma-ray spectroscopy. Aircheck, Inc. is a NRSB certified analytical laboratory for radon analysis (certification #ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

### **EVALUATION OF TESTING CONDITIONS**

These tests represent:

- Follow-up to post-mitigation biennial testing and HVAC upgrade testing.

These tests were conducted to:

- Evaluate radon concentrations following the installation of a new HVAC system and 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 upper-30s and high temperatures ranged from the upper-30s to the mid-50s. Maximum sustained winds ranged from 7-21 miles per hour. Average humidity was around 75%. 0.52 inches of precipitation (rain) was recorded during the testing period.

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## **RESULTS**

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

The results of the radon test analysis indicated the following:

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

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

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

Sincerely,

Mr. Tyler P. McCleaf  
Radon Measurement Provider  
111004 RT

KCI Technologies, Inc.

Attachments:

A- Floor Plan with Test Locations

B - Tables 1-3, Radon Test Summary Spreadsheets

C- Laboratory Analytical Results



# ATTACHMENT A

## Floor Plan With Test Locations

# ATTACHMENT B

## Radon Test Summary Spreadsheet

**Table Notes:**

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Table 1- Radon Testing Results		
Damascus High School		
Test Period: 12/9/2019-12/12/2019		
Kit Number	Room / Area	Result
9333801	3	0.7
9333802	3	0.8
9333803	1	< 0.3
9333804	4	0.8
9333806	7	< 0.3
9333807	5	1.2
9333808	10	0.5
9333809	10	< 0.3
9333810	11	< 0.3
9333811	8	< 0.3
9333812	9	0.8
9333813	11	< 0.3
9333814	12	1
9333815	145	1
9333816	147	< 0.3
9333817	149	< 0.3
9333818	151	< 0.3
9333819	151O	0.5
9333820	153	< 0.3
9333821	155	< 0.3
9333822	157	< 0.3
9333823	155W	< 0.3
9333824	159	< 0.3
9333825	155O	< 0.3
9333826	165	< 0.3
9333827	165	< 0.3
9333828	161	< 0.3
9333829	158	< 0.3
9333830	156	< 0.3
9333831	TV AUDIO	< 0.3
9333832	154	< 0.3
9333833	MEDIA CENTER WORKROOM	< 0.3
9333834	TV CONTROL	< 0.3
9333835	MEDIA CENTER OFFICE 1	< 0.3
9333836	MEDIA CENTER	< 0.3
9333837	170	< 0.3
9333838	170	< 0.3
9333839	MEDIA CENTER	< 0.3
9333840	MEDIA CENTER	< 0.3
9333841	MEDIA CENTER	0.5
9333842	MEDIA CENTER OFFICE 2	< 0.3
9333843	172	< 0.3
9333844	174	< 0.3
9333845	176	0.6
9333846	180	< 0.3
9333847	175	< 0.3
9333848	178	< 0.3
9333849	173	< 0.3
9333850	184	< 0.3
9333851	GIRLS LOCKER OFFICE	< 0.3

9333852	180	< 0.3
9333853	MAIN GYM	< 0.3
9333854	MAIN GYM	< 0.3
9333855	MAIN GYM	< 0.3
9333856	AUX GYM	< 0.3
9333857	AUX GYM	< 0.3
9333858	AUX GYM	< 0.3
9333859	MAIN GYM	< 0.3
9333860	AUX GYM	< 0.3
9333861	183	< 0.3
9333862	183	< 0.3
9333863	183	< 0.3
9333864	181	< 0.3
9333865	134	0.7
9333866	177	< 0.3
9333867	181	< 0.3
9333868	52	< 0.3
9333869	133	< 0.3
9333870	131	0.7
9333871	51	0.9
9333872	177	< 0.3
9333873	50C	0.6
9333874	50C	< 0.3
9333875	132	0.7
9333876	130	< 0.3
9333877	130	< 0.3
9333878	142	0.6
9333879	144	1
9333880	142	0.6
9333881	138	< 0.3
9333882	144 OFFICE	0.7
9333883	141 BUSINESS	0.7
9333884	146	< 0.3
9333885	140	0.7
9333886	138	< 0.3
9333887	139	1
9333888	141 BUSINESS	0.6
9333889	141 CONFERENCE	< 0.3
9333890	143 OFFICE	1.5
9333891	136 ATTENDANCE	< 0.3
9333892	141 FINANCIAL	0.6
9333893	146	0.7
9333894	ASSISTANT PRINCIPAL	0.8
9333895	148	1
9333896	NURSE	0.9
9333897	136 ASSISTANT PRINCIPAL 1	1.1
9333898	136 ASSISTANT PRINCIPAL 2	< 0.3
9333899	136 OFFICE	0.5
9333900	ASSISTANT PRINCIPAL	< 0.3
9333901	136	< 0.3
9333902	136	0.6
9333903	136	< 0.3
9333904	137 OFFICE 2	< 0.3
9333905	136 PRINCIPAL	0.7
9333906	137 OFFICE 4	0.6

9333907	136 CONFERENCE	1.1
9333908	136 ADMIN	0.9
9333909	137 OFFICE 2	< 0.3
9333910	137 OFFICE 6	< 0.3
9333911	137	0.6
9333912	137 OFFICE 6	< 0.3
9333913	137 OFFICE 5	< 0.3
9333914	137 OFFICE 3	< 0.3
9333915	137 OFFICE 1	< 0.3
9333916	118 OFFICE	< 0.3
9333917	119	< 0.3
9333918	118	0.5
9333919	118	0.5
9333920	135 OFFICE	< 0.3
9333921	135	< 0.3
9333922	119	< 0.3
9333923	112	2.1
9333924	114	< 0.3
9333925	119	< 0.3
9333926	114	0.5
9333927	112 OBSERVATION	1.1
9333928	111	< 0.3
9333929	115	0.6
9333930	111	0.6
9333931	116	< 0.3
9333932	117	0.6
9333933	108 OFFICE	< 0.3
9333934	105	< 0.3
9333935	108	< 0.3
9333936	108	< 0.3
9333937	111	0.6
9333938	105	< 0.3
9333939	103 CLASSROOM	< 0.3
9333940	104 OFFICE	< 0.3
9333941	103 OFFICE	< 0.3
9333942	103	< 0.3
9333943	102A	< 0.3
9333944	104	< 0.3
9333945	105	< 0.3
9333946	AUDITORIUM	< 0.3
9333947	103	0.5
9333948	AUDITORIUM	1
9333949	102B	< 0.3
9333950	102	< 0.3
9333951	CAFETERIA	1.1
9333952	CAFETERIA	0.9
9333953	CAFETERIA	0.7
9333954	CAFETERIA	1.2
9333955	AUDITORIUM	1.1
9333956	AUDITORIUM	1.1
9333957	CAFETERIA	0.9
9333958	120	0.9
9333959	120	0.7
9333960	121	0.7
9333961	AUDITORIUM	1

9333962	121	0.6
9333963	213	< 0.3
9333965	235	< 0.3
9333966	235	< 0.3
9333967	219	< 0.3
9333968	121	< 0.3
9333969	242	< 0.3
9333970	207	< 0.3
9333971	CAFETERIA LOUNGE	1
9333973	242	< 0.3
9333974	209	< 0.3
9334977	OFFICE BLANK	< 0.3
9333805	2	MISSING
9333964	232	MISSING

Table 2- Radon Testing Results			
Damascus High School			
Test Period: 12/9/2019-12/12/2019			
Kit Number	QC Type	Room / Area	Result
9333801	D	3	0.7
9333809	FB	10	<0.3
9333813	D	11	<0.3
9333827	D	165	<0.3
9333840	FB	MEDIA CENTER	<0.3
9333837	D	170	<0.3
9333846	D	180	<0.3
9333858	FB	AUX GYM	<0.3
9333863	D	183	<0.3
9333874	D	50C	<0.3
9333876	D	130	<0.3
9333886	FB	138	<0.3
9333878	D	142	0.6
9333884	FB	146	<0.3
9333888	D	141 BUSINESS	0.6
9333900	FB	ASSISTANT PRINCIPAL	<0.3
9333901	D	136	<0.3
9333904	D	137 OFFICE 2	<0.3
9333912	FB	137 OFFICE 6	<0.3
9333925	D	119	<0.3
9333926	D	114	0.5
9333937	D	111	0.6
9333938	D	105	<0.3
9333945	FB	105	<0.3
9333951	D	CAFETERIA	1.1
9333946	FB	AUDITORIUM	<0.3
9333962	D	121	0.6
9333966	D	235	<0.3
9333969	FB	242	<0.3
9334850	TRANSIT BLANK	NA	< 0.3
9334914	TRANSIT BLANK	NA	< 0.3
9334916	TRANSIT BLANK	NA	< 0.3
9334963	TRANSIT BLANK	NA	< 0.3





# ATTACHMENT C

## Laboratory Analytical Results

Radon test result report for:**DAMASCUS HS****MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9333803	01	2019-12-09 @ 8:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-16
9333802	03	2019-12-09 @ 8:00 am	2019-12-12 @ 9:00 am	0.8 ± 0.4	2019-12-17
9333801	03	2019-12-09 @ 8:00 am	2019-12-12 @ 9:00 am	0.7 ± 0.4	2019-12-17
9333804	04	2019-12-09 @ 8:00 am	2019-12-12 @ 9:00 am	0.8 ± 0.3	2019-12-16
9333807	05	2019-12-09 @ 8:00 am	2019-12-12 @ 9:00 am	1.2 ± 0.4	2019-12-16
9333806	07	2019-12-09 @ 8:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-17
9333811	08	2019-12-09 @ 8:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-16
9333812	09	2019-12-09 @ 8:00 am	2019-12-12 @ 9:00 am	0.8 ± 0.3	2019-12-16
9333808	10	2019-12-09 @ 8:00 am	2019-12-12 @ 10:00 am	0.5 ± 0.3	2019-12-16
9333809	10	2019-12-09 @ 8:00 am	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9333950	102	2019-12-09 @ 2:00 pm	2019-12-12 @ 12:00 pm	< 0.3	2019-12-16
9333943	102A	2019-12-09 @ 2:00 pm	2019-12-12 @ 12:00 pm	< 0.3	2019-12-16
9333949	102B	2019-12-09 @ 2:00 pm	2019-12-12 @ 12:00 pm	< 0.3	2019-12-16
9333942	103	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9333947	103	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	0.5 ± 0.4	2019-12-16
9333939	103 CLASSROOM	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9333941	103 OFFICE	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9333944	104	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-17
9333940	104 OFFICE	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9333945	105	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9333938	105	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9333934	105	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9333935	108	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9333936	108	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9333933	108 OFFICE	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9333810	11	2019-12-09 @ 8:00 am	2019-12-12 @ 10:00 am	< 0.3	2019-12-17
9333813	11	2019-12-09 @ 8:00 am	2019-12-12 @ 10:00 am	< 0.3	2019-12-17
9333937	111	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	0.6 ± 0.3	2019-12-16
9333930	111	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	0.6 ± 0.4	2019-12-17
9333928	111	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-17
9333923	112	2019-12-09 @ 1:00 pm	2019-12-12 @ 11:00 am	2.1 ± 0.4	2019-12-16
9333927	112 OBSERVATION	2019-12-09 @ 1:00 pm	2019-12-12 @ 11:00 am	1.1 ± 0.4	2019-12-17
9333926	114	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	0.5 ± 0.4	2019-12-16
9333924	114	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9333929	115	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	0.6 ± 0.3	2019-12-16
9333931	116	2019-12-09 @ 1:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-17
9333932	117	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	0.6 ± 0.4	2019-12-17

Radon test result report for:**DAMASCUS HS  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9333918	118	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	0.5 ± 0.3	2019-12-16
9333919	118	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	0.5 ± 0.3	2019-12-16
9333916	118 OFFICE	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9333917	119	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9333922	119	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9333925	119	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9333814	12	2019-12-09 @ 8:00 am	2019-12-12 @ 10:00 am	1.0 ± 0.4	2019-12-17
9333958	120	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	0.9 ± 0.4	2019-12-16
9333959	120	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	0.7 ± 0.3	2019-12-16
9333968	121	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9333962	121	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	0.6 ± 0.3	2019-12-17
9333960	121	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	0.7 ± 0.4	2019-12-17
9333876	130	2019-12-09 @ 11:00 am	2019-12-12 @ 7:00 am	< 0.3	2019-12-16
9333877	130	2019-12-09 @ 11:00 am	2019-12-12 @ 7:00 am	< 0.3	2019-12-16
9333870	131	2019-12-09 @ 12:00 pm	2019-12-12 @ 8:00 am	0.7 ± 0.3	2019-12-17
9333875	132	2019-12-09 @ 11:00 am	2019-12-12 @ 7:00 am	0.7 ± 0.3	2019-12-16
9333869	133	2019-12-09 @ 12:00 pm	2019-12-12 @ 8:00 am	< 0.3	2019-12-16
9333865	134	2019-12-09 @ 11:00 am	2019-12-12 @ 8:00 am	0.7 ± 0.4	2019-12-17
9333921	135	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9333920	135 OFFICE	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9333903	136	2019-12-09 @ 12:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9333902	136	2019-12-09 @ 12:00 pm	2019-12-12 @ 10:00 am	0.6 ± 0.3	2019-12-16
9333901	136	2019-12-09 @ 12:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-17
9333908	136 ADMIN	2019-12-09 @ 12:00 pm	2019-12-12 @ 10:00 am	0.9 ± 0.4	2019-12-16
9333897	136 ASSISTANT PRINCIPAL 1	2019-12-09 @ 12:00 pm	2019-12-12 @ 10:00 am	1.1 ± 0.4	2019-12-16
9333898	136 ASSISTANT PRINCIPAL 2	2019-12-09 @ 12:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9333891	136 ATTENDANCE	2019-12-09 @ 12:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9333907	136 CONFERENCE	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	1.1 ± 0.3	2019-12-16
9333899	136 OFFICE	2019-12-09 @ 12:00 pm	2019-12-12 @ 10:00 am	0.5 ± 0.3	2019-12-16
9333905	136 PRINCIPAL	2019-12-09 @ 12:00 pm	2019-12-12 @ 10:00 am	0.7 ± 0.3	2019-12-16
9333911	137	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	0.6 ± 0.4	2019-12-16
9333915	137 OFFICE 1	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9333904	137 OFFICE 2	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9333909	137 OFFICE 2	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9333914	137 OFFICE 3	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9333906	137 OFFICE 4	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	0.6 ± 0.4	2019-12-16
9333913	137 OFFICE 5	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16

Radon test result report for:**DAMASCUS HS****MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9333910	137 OFFICE 6	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9333912	137 OFFICE 6	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-17
9333881	138	2019-12-09 @ 12:00 pm	2019-12-12 @ 9:00 am	< 0.3	2019-12-16
9333886	138	2019-12-09 @ 12:00 pm	2019-12-12 @ 9:00 am	< 0.3	2019-12-17
9333887	139	2019-12-09 @ 12:00 pm	2019-12-12 @ 10:00 am	1.0 ± 0.4	2019-12-17
9333885	140	2019-12-09 @ 12:00 pm	2019-12-12 @ 9:00 am	0.7 ± 0.3	2019-12-17
9333883	141 BUSINESS	2019-12-09 @ 12:00 pm	2019-12-12 @ 10:00 am	0.7 ± 0.3	2019-12-16
9333888	141 BUSINESS	2019-12-09 @ 12:00 pm	2019-12-12 @ 10:00 am	0.6 ± 0.3	2019-12-16
9333889	141 CONFERENCE	2019-12-09 @ 12:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9333892	141 FINANCIAL	2019-12-09 @ 12:00 pm	2019-12-12 @ 10:00 am	0.6 ± 0.3	2019-12-16
9333880	142	2019-12-09 @ 12:00 pm	2019-12-12 @ 9:00 am	0.6 ± 0.4	2019-12-16
9333878	142	2019-12-09 @ 12:00 pm	2019-12-12 @ 9:00 am	0.6 ± 0.3	2019-12-16
9333890	143 OFFICE	2019-12-09 @ 12:00 pm	2019-12-12 @ 9:00 am	1.5 ± 0.4	2019-12-16
9333879	144	2019-12-09 @ 12:00 pm	2019-12-12 @ 9:00 am	1.0 ± 0.3	2019-12-16
9333882	144 OFFICE	2019-12-09 @ 12:00 pm	2019-12-12 @ 9:00 am	0.7 ± 0.3	2019-12-17
9333815	145	2019-12-09 @ 8:00 am	2019-12-12 @ 9:00 am	1.0 ± 0.4	2019-12-16
9333884	146	2019-12-09 @ 12:00 pm	2019-12-12 @ 9:00 am	< 0.3	2019-12-17
9333893	146	2019-12-09 @ 12:00 pm	2019-12-12 @ 9:00 am	0.7 ± 0.3	2019-12-17
9333816	147	2019-12-09 @ 8:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-16
9333895	148	2019-12-09 @ 12:00 pm	2019-12-12 @ 10:00 am	1.0 ± 0.3	2019-12-16
9333817	149	2019-12-09 @ 8:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-17
9333818	151	2019-12-09 @ 8:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-16
9333819	151O	2019-12-09 @ 9:00 am	2019-12-12 @ 9:00 am	0.5 ± 0.3	2019-12-17
9333820	153	2019-12-09 @ 9:00 am	2019-12-12 @ 10:00 am	< 0.3	2019-12-17
9333832	154	2019-12-09 @ 10:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-16
9333821	155	2019-12-09 @ 9:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-16
9333825	155O	2019-12-09 @ 9:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-16
9333823	155W	2019-12-09 @ 9:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-16
9333830	156	2019-12-09 @ 9:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-16
9333822	157	2019-12-09 @ 9:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-16
9333829	158	2019-12-09 @ 9:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-17
9333824	159	2019-12-09 @ 9:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-16
9333828	161	2019-12-09 @ 9:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-16
9333827	165	2019-12-09 @ 9:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-16
9333826	165	2019-12-09 @ 9:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-16
9333838	170	2019-12-09 @ 10:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-16
9333837	170	2019-12-09 @ 10:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-17

Radon test result report for:**DAMASCUS HS****MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9333843	172	2019-12-09 @ 10:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-17
9333849	173	2019-12-09 @ 10:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-16
9333844	174	2019-12-09 @ 10:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-16
9333847	175	2019-12-09 @ 10:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-16
9333845	176	2019-12-09 @ 10:00 am	2019-12-12 @ 8:00 am	0.6 ± 0.3	2019-12-16
9333872	177	2019-12-09 @ 11:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-16
9333866	177	2019-12-09 @ 11:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-16
9333848	178	2019-12-09 @ 10:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-17
9333852	180	2019-12-09 @ 10:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-16
9333846	180	2019-12-09 @ 10:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-16
9333867	181	2019-12-09 @ 11:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-16
9333864	181	2019-12-09 @ 11:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-17
9333862	183	2019-12-09 @ 11:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-16
9333861	183	2019-12-09 @ 11:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-16
9333863	183	2019-12-09 @ 11:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-17
9333850	184	2019-12-09 @ 10:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-16
9333970	207	2019-12-09 @ 3:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9333974	209	2019-12-09 @ 3:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9333963	213	2019-12-09 @ 3:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9333967	219	2019-12-09 @ 3:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9333966	235	2019-12-09 @ 3:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9333965	235	2019-12-09 @ 3:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-17
9333973	242	2019-12-09 @ 3:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9333969	242	2019-12-09 @ 3:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9333873	50C	2019-12-09 @ 11:00 am	2019-12-12 @ 8:00 am	0.6 ± 0.3	2019-12-16
9333874	50C	2019-12-09 @ 11:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-17
9333871	51	2019-12-09 @ 11:00 am	2019-12-12 @ 8:00 am	0.9 ± 0.3	2019-12-16
9333868	52	2019-12-09 @ 11:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-17
9333894	ASSISTANT PRINCIPAL	2019-12-09 @ 12:00 pm	2019-12-12 @ 10:00 am	0.8 ± 0.3	2019-12-16
9333900	ASSISTANT PRINCIPAL	2019-12-09 @ 12:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-17
9333955	AUDITORIUM	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	1.1 ± 0.4	2019-12-16
9333948	AUDITORIUM	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	1.0 ± 0.4	2019-12-16
9333946	AUDITORIUM	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-17
9333956	AUDITORIUM	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	1.1 ± 0.4	2019-12-17
9333961	AUDITORIUM	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	1.0 ± 0.4	2019-12-17
9333860	AUX GYM	2019-12-09 @ 11:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-16
9333857	AUX GYM	2019-12-09 @ 11:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-17

Radon test result report for:  
**DAMASCUS HS**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9333858	AUX GYM	2019-12-09 @ 11:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-17
9333856	AUX GYM	2019-12-09 @ 11:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-17
9333953	CAFETERIA	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	0.7 ± 0.3	2019-12-16
9333951	CAFETERIA	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	1.1 ± 0.4	2019-12-16
9333954	CAFETERIA	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	1.2 ± 0.4	2019-12-16
9333952	CAFETERIA	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	0.9 ± 0.4	2019-12-16
9333957	CAFETERIA	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	0.9 ± 0.4	2019-12-16
9333971	CAFETERIA LOUNGE	2019-12-09 @ 3:00 pm	2019-12-12 @ 11:00 am	1.0 ± 0.4	2019-12-16
9333851	GIRLS LOCKER OFFICE	2019-12-09 @ 10:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-17
9333854	MAIN GYM	2019-12-09 @ 11:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-16
9333859	MAIN GYM	2019-12-09 @ 11:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-16
9333853	MAIN GYM	2019-12-09 @ 11:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-16
9333855	MAIN GYM	2019-12-09 @ 11:00 am	2019-12-12 @ 8:00 am	< 0.3	2019-12-17
9333840	MEDIA CENTER	2019-12-09 @ 10:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-16
9333836	MEDIA CENTER	2019-12-09 @ 10:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-16
9333841	MEDIA CENTER	2019-12-09 @ 10:00 am	2019-12-12 @ 9:00 am	0.5 ± 0.3	2019-12-16
9333839	MEDIA CENTER	2019-12-09 @ 10:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-17
9333835	MEDIA CENTER OFFICE 1	2019-12-09 @ 10:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-16
9333842	MEDIA CENTER OFFICE 2	2019-12-09 @ 10:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-17
9333833	MEDIA CENTER WORKROOM	2019-12-09 @ 9:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-16
9333896	NURSE	2019-12-09 @ 12:00 pm	2019-12-12 @ 10:00 am	0.9 ± 0.3	2019-12-16
9333831	TV AUDIO	2019-12-09 @ 10:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-17
9333834	TV CONTROL	2019-12-09 @ 9:00 am	2019-12-12 @ 9:00 am	< 0.3	2019-12-17

# EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KEI Technologies Inc. Job Number 193475

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

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

Date Start: 12/13/19 Date Stop: 12/16/19 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_  
0811  
Time Start: 0806 acm Time Stop: 0811 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_  
(Group 2)  
Device No.'s: (20) Char. Bags - Device No.'s: \_\_\_\_\_  
9334529 thru 9334538,  
9334540,  
9334542 thru 9334550  
B3

Date Start: 12/13/19 Date Stop: 12/16/19 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_  
Time Start: 0816 Time Stop: 0816 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_  
(Group 3)  
Device No.'s: (20) Char. Bags - Device No.'s: \_\_\_\_\_  
9334551, 9334552, 9334562,  
9334555 thru 9334559,  
9334569, 9334576, 9334579,  
9334580, 9334583, 9334584,  
9334591, 9334593, 9334594,  
9334597, 9334598, 9334599  
B2

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



Radon test result report for:

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

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

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December 18, 2019

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

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Radon test result report for:

**N/A**

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

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

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

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



### Radon Test Kit Chain of Custody

Project Name: MCPS Radon 2019 Week 1

Name of Schools:

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

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

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

**RADON SCREENING SURVEY – FOLLOW-UP DAMASCUS HIGH SCHOOL**

25921 Ridge Rd., Damascus, Maryland 20872

**EXECUTIVE SUMMARY**

Date of Test Report:	3/28/19
Round of Testing:	Initial <span style="border: 1px solid red; border-radius: 50%; padding: 2px;">Follow-up</span> Post Remediation
# Rooms Tested	2
# Rooms $\geq$ 4.0 pCi/L:	1
Low Value:	<0.4
High Value:	4.5
Confirmed Rooms $\geq$ 4.0 pCi/L US EPA Action Level	1

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

Room	Result (pCi/L) 2/21/19	Result (pCi/L) 3/28/19	Average Result (pCi/L)
Outside Concession	5.5	4.5	5.0
182	Missing	<0.4	<0.4



## MONTGOMERY COUNTY PUBLIC SCHOOLS RADON TESTING

### Executive Summary: Damascus High School

25921 Ridge Road  
Damascus, MD 20872

Date of Test Report:	3/28/2019
Round of Testing:	Initial <b>Follow-up</b> Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested:	2
# of Rooms $\geq$ 4.0 pCi/L:	1
Low Value:	<0.4
High Value:	4.5

#### Project Status

**Rooms with results  $\geq$  4.0 pCi/L:** Outside Concession (4.5 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 28, 2019

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

Re: Radon Testing Services

Location:       Damascus High School  
                  25921 Ridge Road  
                  Damascus, MD 20872

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 Damascus High School, located at 25921 Ridge Road, Damascus, MD 20872 (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](http://www.montgomerycountymd.gov/dep/air/radon) or [www.epa.gov/radon](http://www.epa.gov/radon).

PSI visited the site on February 25, 2019 and deployed two (2) activated charcoal (AC) radon test kit. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on February 28, 2019 to retrieve the radon sampling test kit. A floor plan map of the building with the test location is included as Attachment A of this report.

PSI shipped all radon tests via overnight delivery to AccuStar Labs for analysis by gamma-ray spectroscopy. Accustar Labs is a NRSB certified analytical laboratory for radon analysis located at 929 Mount Zion Road, Lebanon, Pennsylvania (certification # ARLO007).

**Evaluation of Testing Conditions:**

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

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



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

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

**Results:**

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥ 4.0 pCi/L	Outside Concession	4.5 pCi/L
≤ 4.0 pCi/L	See Attachment B	

Notes:  
D -Duplicate Sample

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

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

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





# **ATTACHMENT B**

Radon Test Summary Spreadsheet

<b>Radon Testing Results</b>		
<b>Damascus High School</b>		
<b>Testing period: 02/25/19 - 02/28/19</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result (pCi/L)</b>
3923433	Room 182	<0.4
3923434	Outside Concession	4.5

<b>Summary of Elevated Tests</b>			
<b>Damascus High School</b>			
<b>Room/Area</b>	<b>Result (pCi/L) Testing period: 12/03/18 - 12/06/18</b>	<b>Result (pCi/L) Testing period: 02/25/19 - 02/28/19</b>	<b>Average Result (pCi/L)</b>
Outside Concession	5.5	4.5	5.0

**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

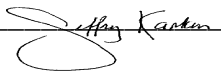
MCPS Radon Survey Damascas HS  
25921 Ridge Road  
Damascus MD 20872

Log Number	Device Number	Test	Exposure	Duration:	Area Tested	Result pCi/L
3220614	3923433	02/25/2019	6:32 am	02/28/2019 6:15 am	Floor Main Room 182	< 0.4
3220615	3923434	02/25/2019	6:25 am	02/28/2019 6:17 am	Floor Ground Room Outside Concession	4.5

**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: 03/04/2019    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: Damascus High School

25921 Ridge Road  
Damascus, MD 20872

Date of Test Report:	02/21/2019
Round of Testing:	Initial Follow-up <b>Post Remediation</b> 2 Year Testing 5 Year Testing <b>HVAC Upgrade</b> Window Replacement New Addition New Facility
# of Rooms Tested:	122
# of Rooms $\geq$ 4.0 pCi/L:	1
Low Value:	< 0.4
High Value:	5.5
Rooms with Results $\geq$ 4.0 pCi/L:	Outside Concession

#### Project Status

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





February 21, 2019

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

Re: Radon Testing Services

Location: Damascus High School  
25921 Ridge Road  
Damascus, MD 20872

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 Damascus High School, located at 25921 Ridge Road, Damascus, MD 20872 (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](http://www.montgomerycountymd.gov/dep/air/radon) or [www.epa.gov/radon](http://www.epa.gov/radon).

PSI visited the site on December 3, 2018 and deployed one hundred and forty-nine (149) 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 # ARLO007) and 2 Saber Way, Haverhill, Massachusetts (certification # ARLO017).



**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
$\geq 4.0$ pCi/L	Outside Concession	5.5
	Outside Concession (D)	5.5
$\leq 4.0$ 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](mailto: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

<b>Radon Testing Results</b>		
<b>Damascus High School</b>		
<b>Testing Period: 12/3/18 - 12/6/18</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result (pCi/L)</b>
3926382	1	0.5
3926383	2	<0.4
3926385	3	0.5
3926386	4	0.4
3926387	5	0.9
3926388	7	<0.4
3926389	8	1.2
3926390	9	0.7
3918441	10	0.9
3918442	11	<0.4
3918444	12	1.0
3917574	102	0.5
3917577	103	0.4
3918455	104	<0.4
3926381	105	<0.4
3926321	108	0.4
3926325	110	<0.4
3926326	111	<0.4
3926330	113	1.0
3926441	114	0.7
3926442	115	0.8
3926323	116	0.5
3926324	117	0.4
3926399	118	0.5
3926444	119	<0.4
3917632	120	1.2
3917631	121	0.9
3918398	130	0.4
3918395	131	0.4
3918397	132	<0.4
3918394	133	0.5
3918396	134	0.6
3926410	136	<0.4
3926409	137	0.7
3918380	139	0.8
3918377	140	0.8
3918376	143	0.7
3918373	144	1.0
3918371	145	0.6
3917750	147	1.9
3917749	148	0.7
3917747	149	<0.4
3917748	150	0.7

<b>Radon Testing Results</b>		
<b>Damascus High School</b>		
<b>Testing Period: 12/3/18 - 12/6/18</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result (pCi/L)</b>
3917744	151	<0.4
3918457	153	<0.4
3918399	154	0.4
3918392	156	<0.4
3918391	157	<0.4
3918447	158	<0.4
3918446	159	<0.4
3918448	160	0.4
3918458	161	<0.4
3918445	162	<0.4
3918459	163	<0.4
3917743	166	<0.4
3926451	170	<0.4
3926453	171	<0.4
3926491	174	<0.4
3926492	177	<0.4
3926481	209	<0.4
3926496	220	0.9
3926498	223	0.8
3926499	227	0.5
3926500	250	<0.4
3917576	102A	0.5
3917575	102B	0.5
3917579	103	0.5
3917580	103 Office	<0.4
3918454	104 Office	0.4
3926322	108 Office	1.2
3926329	112A	0.8
3926327	112A	0.6
3926443	115 Kitchen	0.5
3926400	118 Office	0.5
3926445	119 Office	<0.4
3926446	119 Practice Room	<0.4
3926402	137 Office	0.9
3926403	137 Workroom	0.4
3918378	141	0.6
3926450	142 Conference	0.9
3918400	152	<0.4
3918452	152	<0.4
3918393	155A	<0.4
3918449	155B	0.8
3917742	163 Office	<0.4
3917741	163 Workroom	<0.4

<b>Radon Testing Results</b>		
<b>Damascus High School</b>		
<b>Testing Period: 12/3/18 - 12/6/18</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result (pCi/L)</b>
3917746	165 Office	<0.4
3888190	182 (MISSING)	--
3926455	AD Office	<0.4
3926447	Admin Conference	0.6
3926408	Admin Secretary	0.5
3926406	Assistant Principal	0.4
3926404	Assistant Principal	0.5
3926405	Assistant Principal	0.8
3926401	Attendance	0.4
3917634	Auditorium	1.1
3917635	Auditorium	1.2
3917636	Auditorium Stage	1.3
3926493	Boy's PE Office	<0.4
3918372	Building Service Office	1.3
3926448	Business Manager	0.8
3917571	Cafeteria	0.5
3917572	Cafeteria	0.6
3917573	Cafeteria Staff Room	0.7
3926494	Coaches Office	0.7
3918375	Computer Office	1.0
3926449	Financial Assistant	0.9
3926454	Girls Locker Room Office	<0.4
3926394	Guidance Conference	<0.4
3918379	Health Office	0.4
3915451	IMC Office	<0.4
3918454	IMC Workroom	<0.4
3926456	Interior Concession Stand	<0.4
3917639	Kitchen	0.9
3917640	Kitchen Office	<0.4
3926457	Main Gym	0.4
3926458	Main Gym	0.6
3917638	Mens Dressing	1.0
3926483	Outside Concession	5.5
3926407	Principal	0.7
3926392	Registrar	<0.4
3926393	Registrar Office	<0.4
3926395	Resource Counselor	<0.4
3926396	School Counselor	<0.4
3926397	School Counselor	<0.4
3926398	School Counselor	<0.4
3926459	Small Gym	0.4
3926460	Small Gym	<0.4
3926495	Trainers Room	0.8

<b>Radon Testing Results</b>		
<b>Damascus High School</b>		
<b>Testing Period: 12/3/18 - 12/6/18</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result (pCi/L)</b>
3917745	TV Studio	0.4
3917637	Womens Dressing	0.9



<b>Radon Testing Results</b>		
<b>Damascus High School</b>		
<b>Testing Period: 12/3/18 - 12/6/18</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result (pCi/L)</b>
3926384	2 (D)	<0.4
3918443	11 (D)	<0.4
3917578	103 (D)	0.5
3926328	112 (D)	0.5
3917633	120 (D)	1.3
3926391	136 (D)	0.4
3918374	144 (D)	0.6
3918460	163 (D)	<0.4
3926452	170 (D)	<0.4
3926497	220 (D)	0.8
3918450	155B (D)	0.7
3918456	IMC Office (D)	<0.4
3926482	Outside Concession (D)	5.5
3918186	Field Blank	<0.4
3919571	Field Blank	<0.4
3919572	Field Blank	<0.4
3919459	Office Blank	<0.4
3918183	Transit Blank	<0.4

**Table Notes:**

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control

# **ATTACHMENT C**

Laboratory Analytical Results

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 Damascus HS  
Not Indicated  
Damascus MD 20872

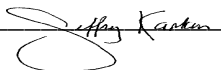
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
3202003	3926382	12/03/2018 6:40 am	12/06/2018 6:30 am	Floor Lower Room 1	0.5
3202004	3926383	12/03/2018 6:42 am	12/06/2018 6:31 am	Floor Lower Room 2	< 0.4
3202005	3926384	12/03/2018 6:42 am	12/06/2018 6:31 am	Floor Lower Room 2 Duplicate	< 0.4
3202006	3926385	12/03/2018 6:46 am	12/06/2018 6:33 am	Floor Lower Room 3	0.5
3202007	3926386	12/03/2018 6:48 am	12/06/2018 6:34 am	Floor Lower Room 4	0.4
3202008	3926387	12/03/2018 6:50 am	12/06/2018 6:35 am	Floor Lower Room 5	0.9
3202009	3926388	12/03/2018 6:52 am	12/06/2018 6:36 am	Floor Lower Room 7	< 0.4
3202010	3926389	12/03/2018 6:54 am	12/06/2018 6:37 am	Floor Lower Room 8	1.2
3202011	3926390	12/03/2018 6:56 am	12/06/2018 6:38 am	Floor Lower Room 9	0.7
3202012	3918441	12/03/2018 6:58 am	12/06/2018 6:39 am	Floor Lower Room 10	0.9
3202013	3918442	12/03/2018 7:00 am	12/06/2018 6:40 am	Floor Lower Room 11	< 0.4


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

Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018    Date Logged: 12/07/2018    Date Analyzed: 12/07/2018    Date Reported: 12/19/2018

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

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

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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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 Damascus HS  
Not Indicated  
Damascus MD 20872

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
3202014	3918443	12/03/2018 7:00 am	12/06/2018 6:40 am	Floor Lower Room 11 Duplicate	< 0.4
3202015	3918444	12/03/2018 7:00 am	12/06/2018 6:40 am	Floor Lower Room 12	1.0
3202016	3918445	12/03/2018 7:06 am	12/06/2018 6:45 am	First Floor Room 162	< 0.4
3202017	3918446	12/03/2018 7:06 am	12/06/2018 6:45 am	First Floor Room 159	< 0.4
3202018	3918447	12/03/2018 7:10 am	12/06/2018 6:47 am	First Floor Room 158	< 0.4
3202019	3918448	12/03/2018 7:12 am	12/06/2018 6:48 am	First Floor Room 160	0.4
3202020	3918449	12/03/2018 7:14 am	12/06/2018 6:50 am	First Floor Room 155B	0.8
3202021	3918450	12/03/2018 7:14 am	12/06/2018 6:50 am	First Floor Room 155B Duplicate	0.7
3202022	3918391	12/03/2018 7:18 am	12/06/2018 6:51 am	First Floor Room 157	< 0.4
3202023	3918392	12/03/2018 7:20 am	12/06/2018 6:52 am	First Floor Room 156	< 0.4
3202024	3918393	12/03/2018 7:22 am	12/06/2018 6:53 am	First Floor Room 155A	< 0.4

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

Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018    Date Logged: 12/07/2018    Date Analyzed: 12/07/2018    Date Reported: 12/19/2018

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

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

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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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 Damascus HS  
Not Indicated  
Damascus MD 20872

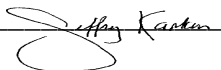
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
3202025	3918394	12/03/2018 7:24 am	12/06/2018 6:54 am	First Floor Room 133	0.5
3202026	3918395	12/03/2018 7:26 am	12/06/2018 6:55 am	First Floor Room 131	0.4
3202027	3918396	12/03/2018 7:28 am	12/06/2018 6:56 am	First Floor Room 134	0.6
3202028	3918397	12/03/2018 7:30 am	12/06/2018 6:57 am	First Floor Room 132	< 0.4
3202029	3918398	12/03/2018 7:32 am	12/06/2018 6:58 am	First Floor Room 130	0.4
3202030	3918399	12/03/2018 7:34 am	12/06/2018 6:59 am	First Floor Room 154	0.4
3202031	3918400	12/03/2018 7:36 am	12/06/2018 7:00 am	First Floor Room IMC	< 0.4
3202032	3918452	12/03/2018 7:38 am	12/06/2018 7:01 am	First Floor Room IMC	< 0.4
3202033	3918453	12/03/2018 7:40 am	12/06/2018 7:02 am	First Floor IMC Workroom	< 0.4
3202034	3918456	12/03/2018 7:42 am	12/06/2018 7:10 am	First Floor Room IMC Office Duplicate	< 0.4
3202035	3918457	12/03/2018 7:46 am	12/06/2018 7:11 am	First Floor Room 153	< 0.4


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

Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018    Date Logged: 12/07/2018    Date Analyzed: 12/07/2018    Date Reported: 12/19/2018

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

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Shawn Price, Director of Laboratory Operations, AccuStar Labs

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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 Damascus HS  
Not Indicated  
Damascus MD 20872

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
3202036	3918458	12/03/2018 7:48 am	12/06/2018 7:12 am	First Floor Room 161	< 0.4
3202037	3918459	12/03/2018 7:50 am	12/06/2018 7:14 am	First Floor Room 163	< 0.4
3202038	3918460	12/03/2018 7:50 am	12/06/2018 7:14 am	First Floor Room 163 Duplicate	< 0.4
3202039	3917741	12/03/2018 7:54 am	12/06/2018 7:15 am	First Floor 163 Workroom	< 0.4
3202040	3917742	12/03/2018 7:56 am	12/06/2018 7:16 am	First Floor Room 163 Office	< 0.4
3202041	3917743	12/03/2018 7:58 am	12/06/2018 7:17 am	First Floor Room 166	< 0.4
3202042	3917744	12/03/2018 8:00 am	12/06/2018 7:18 am	First Floor Room 151	< 0.4
3202043	3917745	12/03/2018 8:02 am	12/06/2018 7:19 am	First Floor Room 165	0.4
3202044	3917746	12/03/2018 8:04 am	12/06/2018 7:20 am	First Floor Room 165 Office	< 0.4
3202045	3917747	12/03/2018 8:06 am	12/06/2018 7:21 am	First Floor Room 149	< 0.4
3202046	3917748	12/03/2018 8:08 am	12/06/2018 7:22 am	First Floor Room 150	0.7

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

Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018 Date Logged: 12/07/2018 Date Analyzed: 12/07/2018 Date Reported: 12/19/2018

Report Reviewed By: 

Report Approved By: 

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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 Damascus HS  
Not Indicated  
Damascus MD 20872

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
3202047	3917749	12/03/2018 8:10 am	12/06/2018 7:23 am	First Floor Room 148	0.7
3202048	3917750	12/03/2018 8:12 am	12/06/2018 7:24 am	First Floor Room 147	1.9
3202049	3918371	12/03/2018 8:14 am	12/06/2018 7:25 am	First Floor Room 145	0.6
3202050	3918372	12/03/2018 8:16 am	12/06/2018 7:26 am	First Floor Room 146	1.3
3202051	3918373	12/03/2018 8:20 am	12/06/2018 7:28 am	First Floor Room 144	1.0
3202052	3918374	12/03/2018 8:20 am	12/06/2018 7:28 am	First Floor Room 144 Duplicate	0.6
3202053	3918375	12/03/2018 8:22 am	12/06/2018 7:29 am	First Floor Room Computer Office	1.0
3202054	3918376	12/03/2018 8:24 am	12/06/2018 7:30 am	First Floor Room 143	0.7
3202055	3918377	12/03/2018 8:26 am	12/06/2018 7:31 am	First Floor Room 140	0.8
3202056	3918378	12/03/2018 8:28 am	12/06/2018 7:45 am	First Floor Room Health	0.6
3202057	3918379	12/03/2018 8:30 am	12/06/2018 7:46 am	First Floor Room Health Office	0.4

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Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018    Date Logged: 12/07/2018    Date Analyzed: 12/07/2018    Date Reported: 12/19/2018

Report Reviewed By: 

Report Approved By: 

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Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Damascus HS  
Not Indicated  
Damascus MD 20872

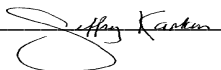
Log Number	Device Number	Test Date	Exposure Start	Exposure End	Area Tested	Result pCi/L
3202058	3918380	12/03/2018	8:32 am	12/06/2018 7:47 am	First Floor Room 139	0.8
3202059	3926401	12/03/2018	8:34 am	12/06/2018 7:48 am	First Floor Room Attendance	0.4
3202060	3926402	12/03/2018	8:36 am	12/06/2018 7:49 am	First Floor Room 137 Office	0.9
3202061	3926403	12/03/2018	8:38 am	12/06/2018 7:50 am	First Floor 137 Workroom	0.4
3202062	3926404	12/03/2018	8:40 am	12/06/2018 7:51 am	First Floor Room Assistant Principal	0.5
3202063	3926405	12/03/2018	8:42 am	12/06/2018 7:52 am	First Floor Room Assistant Principal	0.8
3202064	3926406	12/03/2018	8:44 am	12/06/2018 7:53 am	First Floor Room Assistant Principal	0.4
3202065	3926407	12/03/2018	8:46 am	12/06/2018 7:54 am	First Floor Room Principal	0.7
3202066	3926408	12/03/2018	8:48 am	12/06/2018 7:55 am	First Floor Room Admin Secretary	0.5
3202067	3926409	12/03/2018	8:50 am	12/06/2018 7:56 am	First Floor Room 137	0.7
3202068	3926410	12/03/2018	8:52 am	12/06/2018 7:58 am	First Floor Room 136	< 0.4


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Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018    Date Logged: 12/07/2018    Date Analyzed: 12/07/2018    Date Reported: 12/19/2018

Report Reviewed By: 

Report Approved By: 

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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 Damascus HS  
Not Indicated  
Damascus MD 20872

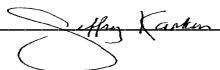
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
3202069	3926391	12/03/2018 8:52 am	12/06/2018 7:58 am	First Floor Room 136 Duplicate	0.4
3202070	3926392	12/03/2018 8:56 am	12/06/2018 7:59 am	First Floor Room Registrar	< 0.4
3202071	3926393	12/03/2018 8:58 am	12/06/2018 8:00 am	First Floor Room Registrar Office	< 0.4
3202072	3926394	12/03/2018 9:00 am	12/06/2018 8:01 am	First Floor Room Guidance Conference	< 0.4
3202073	3926395	12/03/2018 9:02 am	12/06/2018 8:02 am	First Floor Room Resource Counselor	< 0.4
3202074	3926396	12/03/2018 9:04 am	12/06/2018 8:03 am	First Floor Room School Counselor	< 0.4
3202075	3926397	12/03/2018 9:06 am	12/06/2018 8:04 am	First Floor Room School Counselor	< 0.4
3202076	3926398	12/03/2018 9:08 am	12/06/2018 8:05 am	First Floor Room School Counselor	< 0.4
3202077	3926399	12/03/2018 9:10 am	12/06/2018 8:06 am	First Floor Room 118	0.5
3202078	3926400	12/03/2018 9:12 am	12/06/2018 8:07 am	First Floor Room 118 Office	0.5
3202079	3917631	12/03/2018 9:14 am	12/06/2018 8:08 am	First Floor Room 121	0.9

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Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018    Date Logged: 12/07/2018    Date Analyzed: 12/07/2018    Date Reported: 12/19/2018

Report Reviewed By: 

Report Approved By:   
Shawn Price, Director of Laboratory Operations, AccuStar Labs

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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 Damascus HS  
Not Indicated  
Damascus MD 20872

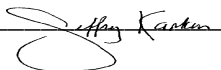
Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
3202080	3917632	12/03/2018 9:16 am - 12/06/2018 8:11 am	First Floor Room 120	1.2
3202081	3917633	12/03/2018 9:16 am - 12/06/2018 8:11 am	First Floor Room 120 Duplicate	1.3
3202082	3917634	12/03/2018 9:20 am - 12/06/2018 8:13 am	First Floor Room Auditorium	1.1
3202083	3917635	12/03/2018 9:22 am - 12/06/2018 8:15 am	First Floor Room Auditorium	1.2
3202084	3917636	12/03/2018 9:24 am - 12/06/2018 8:17 am	First Floor Room Auditorium Stage	1.3
3202085	3917637	12/03/2018 9:26 am - 12/06/2018 8:19 am	First Floor Room Womens Dressing	0.9
3202086	3917638	12/03/2018 9:28 am - 12/06/2018 8:21 am	First Floor Room Mens Dressing	1.0
3202087	3917640	12/03/2018 9:30 am - 12/06/2018 8:23 am	First Floor Room Kitchen	0.9
3202088	3917639	12/03/2018 9:32 am - 12/06/2018 8:25 am	First Floor Room Kitchen Office	< 0.4
3202089	3917571	12/03/2018 9:34 am - 12/06/2018 8:27 am	First Floor Room Cafeteria	0.5
3202090	3917572	12/03/2018 9:36 am - 12/06/2018 8:29 am	First Floor Room Cafeteria	0.6


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Test Performed By: Nan Lin

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NRSB ARL0007

EPA Method #402-R-92-004  
Charcoal Canister  
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Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Damascus HS  
Not Indicated  
Damascus MD 20872

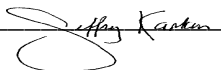
Log Number	Device Number	Test Exposure	Duration:	Area Tested	Result pCi/L
3202091	3917573	12/03/2018 9:38 am	12/06/2018 8:31 am	First Floor Room Cafeteria Staff	0.7
3202092	3917574	12/03/2018 9:40 am	12/06/2018 8:33 am	First Floor Room 102	0.5
3202093	3917575	12/03/2018 9:42 am	12/06/2018 8:35 am	First Floor Room 102B	0.5
3202094	3917576	12/03/2018 9:44 am	12/06/2018 8:37 am	First Floor Room 102A	0.5
3202095	3917577	12/03/2018 9:46 am	12/06/2018 8:41 am	First Floor Room 103	0.4
3202096	3917578	12/03/2018 9:46 am	12/06/2018 8:41 am	First Floor Room 103 Duplicate	0.5
3202097	3917579	12/03/2018 9:50 am	12/06/2018 8:43 am	First Floor 103 Classroom	0.5
3202098	3917580	12/03/2018 9:52 am	12/06/2018 8:45 am	First Floor Room 103 Office	< 0.4
3202099	3918454	12/03/2018 9:54 am	12/06/2018 8:47 am	First Floor Room 104 Office	0.4
3202100	3926381	12/03/2018 9:56 am	12/06/2018 8:49 am	First Floor Room 105	< 0.4
3202101	3918455	12/03/2018 9:58 am	12/06/2018 8:51 am	First Floor Room 104	< 0.4


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Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018    Date Logged: 12/07/2018    Date Analyzed: 12/07/2018    Date Reported: 12/19/2018

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EPA Method #402-R-92-004  
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Laboratory Report for:

Property Tested: Project # 04481387-1

Intertek-PSI (VA)  
2930 Eskridge Road  
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MCPS Radon Survey Damascus HS  
Not Indicated  
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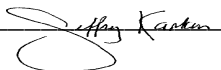
Log Number	Device Number	Test Exposure Duration:			Area Tested	Result pCi/L
3202102	3926321	12/03/2018	10:00 am	12/06/2018 8:53 am	First Floor Room 108	0.4
3202103	3926322	12/03/2018	10:02 am	12/06/2018 8:55 am	First Floor Room 108 Office	1.2
3202104	3926323	12/03/2018	10:04 am	12/06/2018 8:57 am	First Floor Room 116	0.5
3202105	3926324	12/03/2018	10:06 am	12/06/2018 8:59 am	First Floor Room 117	0.4
3202106	3926325	12/03/2018	10:08 am	12/06/2018 9:01 am	First Floor Room 110	< 0.4
3202107	3926326	12/03/2018	10:10 am	12/06/2018 9:03 am	First Floor Room 111	< 0.4
3202108	3926327	12/03/2018	10:12 am	12/06/2018 9:07 am	First Floor Room 112	0.6
3202109	3926328	12/03/2018	10:12 am	12/06/2018 9:07 am	First Floor Room 112 Duplicate	0.5
3202110	3926329	12/03/2018	10:16 am	12/06/2018 9:09 am	First Floor 112 Observation Room	0.8
3202111	3926330	12/03/2018	10:18 am	12/06/2018 9:11 am	First Floor Room 113	1.0
3202112	3926441	12/03/2018	10:20 am	12/06/2018 9:13 am	First Floor Room 114	0.7


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Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018    Date Logged: 12/07/2018    Date Analyzed: 12/07/2018    Date Reported: 12/19/2018

Report Reviewed By: 

Report Approved By: 

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Laboratory Report for:

Property Tested: Project # 04481387-1

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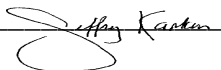
Log Number	Device Number	Test Exposure	Duration:	Area Tested	Result pCi/L
3202113	3926442	12/03/2018 10:22 am	12/06/2018 9:15 am	First Floor Room 115	0.8
3202114	3926443	12/03/2018 10:24 am	12/06/2018 9:17 am	First Floor Room 115 Kitchen	0.5
3202115	3926444	12/03/2018 10:26 am	12/06/2018 9:19 am	First Floor Room 119	< 0.4
3202116	3926445	12/03/2018 10:28 am	12/06/2018 9:21 am	First Floor Room 119 Office	< 0.4
3202117	3926446	12/03/2018 10:30 am	12/06/2018 9:23 am	First Floor 119 Practice Room	< 0.4
3202118	3926447	12/03/2018 10:32 am	12/06/2018 9:25 am	First Floor Room Main Office Conference	0.6
3202119	3926448	12/03/2018 10:34 am	12/06/2018 9:27 am	First Floor Room 142 Business Manager	0.8
3202120	3926449	12/03/2018 10:36 am	12/06/2018 9:29 am	First Floor Room 142 Financial Assistant	0.9
3202121	3926450	12/03/2018 10:38 am	12/06/2018 9:31 am	First Floor Room 142 Conference	0.9
3202122	3926451	12/03/2018 10:40 am	12/06/2018 9:35 am	First Floor Room 170	< 0.4
3202123	3926452	12/03/2018 10:40 am	12/06/2018 9:35 am	First Floor Room 170 Duplicate	< 0.4


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

Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018    Date Logged: 12/07/2018    Date Analyzed: 12/07/2018    Date Reported: 12/19/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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Laboratory Report for:

Property Tested: Project # 04481387-1

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Fairfax VA 22031

MCPS Radon Survey Damascus HS  
Not Indicated  
Damascus MD 20872

Log Number	Device Number	Test Exposure	Duration:	Area Tested	Result pCi/L
3202124	3926453	12/03/2018 10:44 am	12/06/2018 9:37 am	First Floor Room 171	< 0.4
3202125	3926454	12/03/2018 10:46 am	12/06/2018 9:39 am	First Floor Room Girls Locker Office	< 0.4
3202126	3926455	12/03/2018 10:48 am	12/06/2018 9:41 am	First Floor Room AD Office	< 0.4
3202127	3926456	12/03/2018 10:50 am	12/06/2018 9:43 am	First Floor Room Interior Con Stand	< 0.4
3202128	3926457	12/03/2018 10:52 am	12/06/2018 9:45 am	First Floor Room Main Gym	0.4
3202129	3926458	12/03/2018 10:54 am	12/06/2018 9:47 am	First Floor Room Main Gym	0.6
3202130	3926459	12/03/2018 10:58 am	12/06/2018 9:51 am	First Floor Room Small Gym	0.4
3202131	3926460	12/03/2018 11:00 am	12/06/2018 9:53 am	First Floor Room Small Gym	< 0.4
3202132	3926491	12/03/2018 11:02 am	12/06/2018 9:55 am	First Floor Room 174	< 0.4
3202133	3926492	12/03/2018 11:04 am	12/06/2018 9:57 am	First Floor Room 177	< 0.4
3202134	3926493	12/03/2018 11:06 am	12/06/2018 9:59 am	First Floor Room PE Office	< 0.4

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

Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018 Date Logged: 12/07/2018 Date Analyzed: 12/07/2018 Date Reported: 12/19/2018

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

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

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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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 Damascus HS  
Not Indicated  
Damascus MD 20872

Log Number	Device Number	Test Exposure Duration:			Area Tested	Result pCi/L
3202135	3926494	12/03/2018	11:08 am	12/06/2018 10:01 am	First Floor Room Coaches Office	0.7
3202136	3926495	12/03/2018	11:10 am	12/06/2018 10:03 am	First Floor Trainers Room	0.8
3202137	3926496	12/03/2018	11:12 am	12/06/2018 10:07 am	First Floor Room 220	0.9
3202138	3926497	12/03/2018	11:12 am	12/06/2018 10:07 am	First Floor Room 220 Duplicate	0.8
3202139	3926498	12/03/2018	11:12 am	12/06/2018 10:07 am	First Floor Room 223	0.8
3202140	3926499	12/03/2018	11:18 am	12/06/2018 10:11 am	First Floor Room 227	0.5
3202141	3926500	12/03/2018	11:20 am	12/06/2018 10:13 am	First Floor Room 250	< 0.4
3202142	3926481	12/03/2018	11:22 am	12/06/2018 10:15 am	First Floor Room 209	< 0.4
3202143	3926483	12/03/2018	11:22 am	12/06/2018 10:15 am	First Floor Room Outside Con	5.5
3202144	3926482	12/03/2018	11:22 am	12/06/2018 10:15 am	First Floor Room Outside Con Duplicate	5.5
3202145	3919459	12/03/2018	6:00 am	12/06/2018 6:00 pm	Office Blank	< 0.4

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

Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018    Date Logged: 12/07/2018    Date Analyzed: 12/07/2018    Date Reported: 12/19/2018

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

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Shawn Price, Director of Laboratory Operations, AccuStar Labs

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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 Damascus HS  
Not Indicated  
Damascus MD 20872

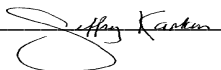
Log Number	Device Number	Test	Exposure	Duration:	Area Tested	Result pCi/L
3202146	3918183	12/03/2018	6:00 am	12/06/2018 6:00 pm	Transit Blank	< 0.4
3202147	3918186	12/03/2018	6:40 am	12/06/2018 10:19 am	Field Blank	< 0.4
3202148	3919571	12/03/2018	6:40 am	12/06/2018 10:19 am	Field Blank	< 0.4
3202149	3919572	12/03/2018	6:40 am	12/06/2018 10:19 am	Field Blank	< 0.4


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

Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018    Date Logged: 12/07/2018    Date Analyzed: 12/07/2018    Date Reported: 12/19/2018

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

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

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NRPP 105011 AL  
NRSB ARL0007  
Ohio RL41

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

Laboratory Report for:

Property Tested:

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

MCPS Radon Survey  
4514 Taylorsville Road  
Dayton OH 45424

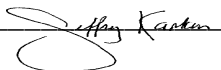
Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
3204125	3926831	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	36.1
3204126	3926832	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	34.8
3204127	3926833	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	33.7
3204128	3926834	12/07/2018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


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

Test Performed By: Unknown

Distributed by: Intertek-PSI (VA)

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

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

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Shawn Price, Director of Laboratory Operations, AccuStar Labs

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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  $\mu$ 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                 |

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	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 DAMASCUS HIGH SCHOOL**

25921 Ridge Rd., Damascus, Maryland 20872

**EXECUTIVE SUMMARY**

Date of Test Report:	3/7/18
Round of Testing:	Initial <span style="border: 1px solid red; border-radius: 50%; padding: 2px;">Follow-up</span> Post Remediation
# Rooms Tested	23
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	<0.3
High Value:	3.7
Confirmed Rooms $\geq$ 4.0 pCi/L US EPA Action Level	1

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

Room	Result (pCi/L) 2/2/18	Result (pCi/L) 3/7/18	Average Result (pCi/L)
121	4.5	3.7	4.1
120	4.1	Missing	---



**MCPS RADON TESTING - EXECUTIVE SUMMARY**

Site Name	Damascus High School
Date of Report	March 7, 2018
Round of Testing	Initial <b>Follow-up</b> Post Remediation 2 year testing 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	23
# Rooms $\geq 4.0$ pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	3.7 pCi/L

**Project Status**

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



March 7, 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: Damascus High School**

25921 Ridge Rd.  
Damascus, Maryland 20872

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 Damascus High School, located at 25921 Ridge Rd. in Damascus, Maryland 20872 (subject site).

**SCOPE OF SERVICES**

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

KCI visited the site on February 12, 2018 and deployed 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.

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

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

---

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

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

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

### **EVALUATION OF TESTING CONDITIONS**

These tests represent:

- Follow-up to post-mitigation biennial testing.

These tests were conducted to:

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

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

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

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

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



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## **RESULTS**

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

The results of the radon test analysis indicated the following:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
$\geq 4.0$ pCi/L	None	N/A
$\leq 4.0$ pCi/L	See Attachment B	See Attachment B

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

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

Sincerely,



Radon Measurement Specialist  
KCI Technologies, Inc.

Attachments:

B - Radon Test Summary Spreadsheets

C - Laboratory Analytical Results

# ATTACHMENT B

## Radon Test Summary Spreadsheet

**Table Notes:**

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

<b>Table 1- Radon Testing Results</b>		
<b>Damascus High School</b>		
<b>Test Period: 02/12/18-02/15/18</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7984153	121	3.7
7984149	102/TECH ROOM	1.6
7984146	* 120 (Missing)	-
7984175	155 A	0.6
7984172	155 B	0.7
7984152	BAND OFFICE	0.6
7984148	BAND ROOM	0.9
7984179	BANK	1.5
7984154	BSO	1.2
7984160	BUSINESS CONFERENCE	1.1
7984155	CHORUS	< 0.3
7984139	CHORUS ROOM	0.7
7984174	CONFERENCE ROOM	1.2
7984159	CONTROL ROOM	2.6
7984173	DANCE	2.4
7984180	* GYM 1 (Missing)	-
7984150	KITCHEN	2.1
7984140	KITCHEN OFFICE	2.4
7984171	MAILROOM	2.1
7984151	PRACTICE	1.0
7984147	SHOP	0.6
7984143	SHOP OFFICE	1.7
7984170	WRESTLING	0.7

Table Note:

\* Missing or Compromised Sample

<b>Table 2- Radon Testing Results</b>		
<b>Damascus High School</b>		
<b>Test Period: 02/12/18-02/15/18</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7984166	D (BSO)	1.1
7984157	D (SHOP OFFICE)	1.8
7984156	FB (CONTROL ROOM)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

Radon test result report for:  
**DAMASCUS HIGH SCHOOL**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7984149	102/TECH ROOM	2018-02-12 @ 10:00 am	2018-02-15 @ 9:00 am	1.6 ± 0.4	2018-02-19
7984146	120	@	@		
7984153	121	2018-02-12 @ 9:00 am	2018-02-15 @ 9:00 am	3.7 ± 0.5	2018-02-19
7984175	155 A	2018-02-12 @ 9:00 am	2018-02-15 @ 9:00 am	0.6 ± 0.4	2018-02-19
7984148	BAND ROOM	2018-02-12 @ 9:00 am	2018-02-15 @ 9:00 am	0.9 ± 0.4	2018-02-19
7984179	BANK	2018-02-12 @ 9:00 am	2018-02-15 @ 9:00 am	1.5 ± 0.4	2018-02-19
7984166	BSO	2018-02-12 @ 9:00 am	2018-02-15 @ 9:00 am	1.1 ± 0.4	2018-02-19
7984154	BSO	2018-02-12 @ 9:00 am	2018-02-15 @ 9:00 am	1.2 ± 0.4	2018-02-19
7984160	BUSINESS CONFERN	2018-02-12 @ 9:00 am	2018-02-15 @ 8:00 am	1.1 ± 0.4	2018-02-19
7984155	CHORUS	2018-02-12 @ 9:00 am	2018-02-15 @ 9:00 am	< 0.3	2018-02-19
7984139	CHORUS ROOM	2018-02-12 @ 9:00 am	2018-02-15 @ 9:00 am	0.7 ± 0.4	2018-02-19
7984174	CONFRENCE ROOM	2018-02-12 @ 9:00 am	2018-02-15 @ 9:00 am	1.2 ± 0.4	2018-02-19
7984156	CONTROL ROOM	2018-02-12 @ 10:00 am	2018-02-15 @ 9:00 am	< 0.3	2018-02-19
7984173	DANCE	2018-02-12 @ 9:00 am	2018-02-15 @ 9:00 am	2.4 ± 0.4	2018-02-19
7984150	KITCHEN	2018-02-12 @ 10:00 am	2018-02-15 @ 9:00 am	2.1 ± 0.4	2018-02-19
7984140	KITCHEN OFFICE	2018-02-12 @ 10:00 am	2018-02-15 @ 9:00 am	2.4 ± 0.4	2018-02-19
7984171	MAILROOM	2018-02-12 @ 9:00 am	2018-02-15 @ 9:00 am	2.1 ± 0.4	2018-02-19
7984151	PRACTICE	2018-02-12 @ 9:00 am	2018-02-15 @ 9:00 am	1.0 ± 0.4	2018-02-19
7984143	SHOP OFFICE	2018-02-12 @ 10:00 am	2018-02-15 @ 9:00 am	1.7 ± 0.4	2018-02-19
7984170	WRESTLING	2018-02-12 @ 9:00 am	2018-02-15 @ 9:00 am	0.7 ± 0.3	2018-02-19



## 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

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

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



Radon test result report for:  
**OFFICE BLANKS**

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

Radon test result report for:  
**TRANSIT BLANKS**

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

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February 28, 2018

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

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Radon test result report for:

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

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

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

# EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 183530

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

Date Start: 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  $\mu$ R/h Elevation = 820 ft



**MCPS RADON TESTING - EXECUTIVE SUMMARY**

Site Name	Damascus High School
Date of Report	February 2, 2018
Round of Testing	Initial Follow-up Post Remediation <b>2 year testing</b> 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	113
# Rooms $\geq 4.0$ pCi/L	2
Lowest Value	< 0.3 pCi/L
Highest Value	4.5 pCi/L

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

121 (4.5 pCi/L), 120 (4.1 pCi/L)

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

Missing or compromised samples need re-test.



February 2, 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: Damascus High School**

25921 Ridge Rd.  
Damascus, Maryland 20872

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 Damascus High School, located at 25921 Ridge Rd. in Damascus, Maryland 20872 (subject site).

**SCOPE OF SERVICES**

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

KCI visited the site on December 5, 2017 and deployed one hundred forty-one (141) 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 8, 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 low-30s to mid-40s and high temperatures ranged from the upper-30s to mid-50s. Maximum sustained winds ranged from 4-17 miles per hour. Average humidity was around 60%. 0.16 Inches of precipitation was recorded during the testing period.

### **RESULTS**

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

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
$\geq 4.0$ pCi/L	121	4.5
$\geq 4.0$ pCi/L	120	4.1
$\leq 4.0$ pCi/L	See Attachment B	See Attachment B

Quality Control Samples	
Results of Blank Canisters:	The field blanks, office blanks, and lab transit blankshad 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.

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 Mouldsdale, CHMM  
Radon Measurement Specialist  
KCI Technologies, Inc.

Attachments:

B- Table 1-Radon Test Summary Spreadsheet

C- Laboratory Analytical Results



# ATTACHMENT B

## Radon Test Summary Spreadsheet

**Table Notes:**

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

<b>Radon Testing Results</b>		
<b>Damascus High School</b>		
<b>Test Period: 12/05/17-12/08/17</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7983971	1	0.9
7983969	2	0.6
7983970	3	1.3
7983968	4	0.7
7983932	5	1.1
7983933	7	< 0.3
7983934	8	1.0
7983939	9	1.1
7983935	10	1.1
7983940	11	0.8
7983945	12	1.7
7983979	103	2.1
7983975	104	< 0.3
7983983	105	1.1
7983976	108	1.5
7983988	111	1.4
7983981	112	1.6
7983812	113	0.7
7983803	114	0.5
7983802	115	0.6
7975306	116	0.5
7983805	117	0.6
7983999	118	0.9
7983806	119	< 0.3
7983989	120	4.1
7983972	121	4.5
7983951	130	< 0.3
7983949	130	0.7
7983952	131	0.7
7975323	132	1.1
7983948	133	0.7
7975320	134	0.8
7983990	136	1.0
7975307	137	1.6
7975313	139	1.5
7975309	140	1.3
7983964	141	1.7
7983953	143	1.2
7983924	144	1.4
7983961	145	1.4
7983965	146	1.4
7983941	147	2.3
7983937	148	1.3
7983944	149	1.1
7983942	150	0.9
7983938	151	0.8

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Damascus High School</b>		
<b>Test Period: 12/05/17-12/08/17</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7983911	152	0.9
7983912	152	0.7
7983913	153	0.6
7983905	154	< 0.3
7983903	156	0.7
7983902	157	0.8
7983926	158	< 0.3
7983916	159	< 0.3
7983917	160	0.7
7983925	161	< 0.3
7983967	162	< 0.3
7983947	163	0.7
7975319	165	0.6
7983943	166	0.8
7983910	170	0.5
7983914	171	1.4
7983921	182	3.0
7983808	223	0.8
7983804	224	0.6
7983816	227	< 0.3
7983831	229	0.7
7983825	230	1.0
7983809	232	1.1
7983822	240	< 0.3
7983821	241	< 0.3
7983823	243	< 0.3
7983826	244	< 0.3
7983832	249	0.8
7983830	253	0.9
7983974	103 OFFICE	0.8
7983982	112A	1.5
7983980	118 OFFICE	0.5
7983807	119 OFFICE	< 0.3
7983904	155A	1.1
7983901	155B	0.7
7983927	AD OFFICE	2.7
7983958	ADMIN CONF	1.2
7975310	ADMIN SECRET	1.2
7983960	AP1	1.6
7983955	AP2	1.7
7983957	AP3	1.1
7983954	ATTENDANCE	1.1
7983977	AUDITORIUM	3.2
7983973	AUDITORIUM	2.7
7983992	AUDITORIUM	3.0
7983907	BOYS PE OFFICE	2.5
7983909	* BSO (Fan On)	1.6
7983923	BUSIN MNGR	1.5
7983986	CAFE	2.1
7983987	CAFE	2.2

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Damascus High School</b>		
<b>Test Period: 12/05/17-12/08/17</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7975315	CO	1.0
7983959	COMP OFFICE	1.5
7983991	COUNS.1	0.7
7983995	COUNS1	< 0.3
7983996	COUNS2	0.7
7983998	COUNS3	1.1
7983997	COUNS4	0.8
7983985	COUNS5	0.9
7983962	FINANCIAL ASSIST	1.5
7984000	GUID. CONF.RM	0.8
7983930	GYM1	1.6
7983906	GYM1	1.7
7983929	GYM1	2.0
7983922	* GYM1 (Missing)	-
7983918	GYM2	1.5
7983919	GYM2	2.0
7983920	GYM2	1.8
7975321	HUB	0.7
7975316	IMC WORKROOM	< 0.3
7983956	NURSE	1.1
7975312	PRINCIPAL	1.2
7983993	REGISTRAR	1.1
7983994	RO	0.8
7975308	SIDE OFFICE	1.2
7983963	SPEC. ED. CONF.	0.9
7975317	TV	1.0
7983915	WEIGHT ROOM	1.9

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Damascus High School</b>		
<b>Test Period: 12/05/17-12/08/17</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7975318	D (108)	1.3
7983936	D (11)	0.8
7983801	D (115)	0.8
7983950	D (130)	0.9
7975314	D (152)	0.9
7983946	D (162)	< 0.3
7983908	D (170)	< 0.3
7983824	D (227)	0.7
7983984	D (AUDITORIUM)	3.5
7983966	D (COMP OFFICE)	1.1
7983928	D (GYM2)	1.7
7975311	D (PRINCIPAL)	1.2
7983814	FB (115)	< 0.3
7983931	FB (182)	< 0.3
7983978	FB (AUDITORIUM)	< 0.3
7983865	FB (COUNS 1)	< 0.3
7984045	OB (OFFICE BLANK)	< 0.3
7984047	OB (OFFICE BLANK)	< 0.3

Table Note:

\* Missing or Compromised Sample



# ATTACHMENT C

## Laboratory Analytical Results



Radon test result report for:  
**DAMASCUS HIGH SCHOOL**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7983971	1	2017-12-05 @ 9:00 am	2017-12-08 @ 7:00 am	0.9 ± 0.3	2017-12-12
7983979	103	2017-12-05 @ 4:00 pm	2017-12-08 @ 9:00 am	2.1 ± 0.4	2017-12-12
7983974	103 OFFICE	2017-12-05 @ 4:00 pm	2017-12-08 @ 9:00 am	0.8 ± 0.4	2017-12-12
7983975	104	2017-12-05 @ 4:00 pm	2017-12-08 @ 9:00 am	< 0.3	2017-12-12
7975318	108	2017-12-05 @ 4:00 pm	2017-12-08 @ 9:00 am	1.3 ± 0.4	2017-12-12
7983976	108	2017-12-05 @ 4:00 pm	2017-12-08 @ 9:00 am	1.5 ± 0.4	2017-12-12
7983936	11	2017-12-05 @ 9:00 am	2017-12-08 @ 7:00 am	0.8 ± 0.3	2017-12-12
7983940	11	2017-12-05 @ 9:00 am	2017-12-08 @ 7:00 am	0.8 ± 0.3	2017-12-12
7983988	111	2017-12-05 @ 5:00 pm	2017-12-08 @ 9:00 am	1.4 ± 0.3	2017-12-12
7983981	112	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	1.6 ± 0.3	2017-12-12
7983982	112A	2017-12-05 @ 5:00 pm	2017-12-08 @ 9:00 am	1.5 ± 0.4	2017-12-12
7983803	114	2017-12-05 @ 9:00 am	2017-12-08 @ 9:00 am	0.5 ± 0.3	2017-12-12
7983801	115	2017-12-05 @ 5:00 pm	2017-12-08 @ 9:00 am	0.8 ± 0.3	2017-12-12
7983802	115	2017-12-05 @ 5:00 pm	2017-12-08 @ 9:00 am	0.6 ± 0.3	2017-12-12
7983814	115	2017-12-05 @ 5:00 pm	2017-12-08 @ 9:00 am	< 0.3	2017-12-12
7975306	116	2017-12-05 @ 4:00 pm	2017-12-08 @ 9:00 am	0.5 ± 0.3	2017-12-12
7983805	117	2017-12-05 @ 5:00 pm	2017-12-08 @ 9:00 am	0.6 ± 0.3	2017-12-12
7983980	118 OFFICE	2017-12-05 @ 4:00 pm	2017-12-08 @ 9:00 am	0.5 ± 0.3	2017-12-12
7983806	119	2017-12-05 @ 5:00 pm	2017-12-08 @ 9:00 am	< 0.3	2017-12-12
7983807	119 OFFICE	2017-12-05 @ 5:00 pm	2017-12-08 @ 9:00 am	< 0.3	2017-12-12
7983945	12	2017-12-05 @ 9:00 am	2017-12-08 @ 7:00 am	1.7 ± 0.4	2017-12-12
7983989	120	2017-12-05 @ 4:00 pm	2017-12-08 @ 9:00 am	4.1 ± 0.4	2017-12-12
7983972	121	2017-12-05 @ 4:00 pm	2017-12-08 @ 9:00 am	4.5 ± 0.5	2017-12-12
7983949	130	2017-12-05 @ 1:00 pm	2017-12-08 @ 8:00 am	0.7 ± 0.3	2017-12-12
7983950	130	2017-12-05 @ 1:00 pm	2017-12-08 @ 8:00 am	0.9 ± 0.3	2017-12-12
7983952	131	2017-12-05 @ 1:00 pm	2017-12-08 @ 8:00 am	0.7 ± 0.3	2017-12-12
7975323	132	2017-12-05 @ 12:00 pm	2017-12-08 @ 8:00 am	1.1 ± 0.4	2017-12-12
7983948	133	2017-12-05 @ 1:00 pm	2017-12-08 @ 8:00 am	0.7 ± 0.3	2017-12-12
7975320	134	2017-12-05 @ 12:00 pm	2017-12-08 @ 9:00 am	0.8 ± 0.3	2017-12-12
7983990	136	2017-12-05 @ 8:00 am	2017-12-08 @ 8:00 am	1.0 ± 0.3	2017-12-12
7975307	137	2017-12-05 @ 3:00 pm	2017-12-08 @ 8:00 am	1.6 ± 0.4	2017-12-12
7975313	139	2017-12-05 @ 2:00 pm	2017-12-08 @ 8:00 am	1.5 ± 0.4	2017-12-12
7975309	140	2017-12-05 @ 2:00 pm	2017-12-08 @ 8:00 am	1.3 ± 0.4	2017-12-12
7983964	141	2017-12-05 @ 2:00 pm	2017-12-08 @ 8:00 am	1.7 ± 0.4	2017-12-12
7983953	143	2017-12-05 @ 1:00 pm	2017-12-08 @ 8:00 am	1.2 ± 0.4	2017-12-12
7983924	144	2017-12-05 @ 2:00 pm	2017-12-08 @ 8:00 am	1.4 ± 0.4	2017-12-12
7983961	145	2017-12-05 @ 1:00 pm	2017-12-08 @ 10:00 am	1.4 ± 0.3	2017-12-12

Radon test result report for:  
**DAMASCUS HIGH SCHOOL**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7983965	146	2017-12-05 @ 1:00 pm	2017-12-08 @ 9:00 am	1.4 ± 0.4	2017-12-12
7983941	147	2017-12-05 @ 9:00 am	2017-12-08 @ 7:00 am	2.3 ± 0.4	2017-12-12
7983937	148	2017-12-05 @ 9:00 am	2017-12-08 @ 7:00 am	1.3 ± 0.3	2017-12-12
7983944	149	2017-12-05 @ 9:00 am	2017-12-08 @ 7:00 am	1.1 ± 0.4	2017-12-12
7983942	150	2017-12-05 @ 9:00 am	2017-12-08 @ 7:00 am	0.9 ± 0.3	2017-12-12
7983938	151	2017-12-05 @ 9:00 am	2017-12-08 @ 7:00 am	0.8 ± 0.3	2017-12-12
7983912	152	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	0.7 ± 0.3	2017-12-12
7975314	152	2017-12-05 @ 1:00 pm	2017-12-08 @ 8:00 am	0.9 ± 0.3	2017-12-12
7983911	152	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	0.9 ± 0.3	2017-12-12
7983913	153	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	0.6 ± 0.3	2017-12-12
7983905	154	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	< 0.3	2017-12-12
7983904	155A	2017-12-05 @ 11:00 am	2017-12-08 @ 9:00 am	1.1 ± 0.3	2017-12-12
7983901	155B	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	0.7 ± 0.3	2017-12-12
7983903	156	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	0.7 ± 0.3	2017-12-12
7983902	157	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	0.8 ± 0.4	2017-12-12
7983926	158	2017-12-05 @ 10:00 am	2017-12-08 @ 7:00 am	< 0.3	2017-12-12
7983916	159	2017-12-05 @ 10:00 am	2017-12-08 @ 7:00 am	< 0.3	2017-12-12
7983917	160	2017-12-05 @ 10:00 am	2017-12-08 @ 7:00 am	0.7 ± 0.3	2017-12-12
7983925	161	2017-12-05 @ 10:00 am	2017-12-08 @ 7:00 am	< 0.3	2017-12-12
7983947	163	2017-12-05 @ 9:00 am	2017-12-08 @ 7:00 am	0.7 ± 0.3	2017-12-12
7975319	165	2017-12-05 @ 1:00 pm	2017-12-08 @ 8:00 am	0.6 ± 0.3	2017-12-12
7983943	166	2017-12-05 @ 9:00 am	2017-12-08 @ 7:00 am	0.8 ± 0.3	2017-12-12
7983908	170	2017-12-05 @ 11:00 am	2017-12-08 @ 7:00 am	< 0.3	2017-12-12
7983910	170	2017-12-05 @ 11:00 am	2017-12-08 @ 7:00 am	0.5 ± 0.3	2017-12-12
7983931	182	2017-12-05 @ 10:00 am	2017-12-08 @ 7:00 am	< 0.3	2017-12-12
7983921	182	2017-12-05 @ 10:00 am	2017-12-08 @ 7:00 am	3.0 ± 0.4	2017-12-12
7983969	2	2017-12-05 @ 9:00 am	2017-12-08 @ 7:00 am	0.6 ± 0.3	2017-12-12
7983808	223	2017-12-05 @ 5:00 pm	2017-12-08 @ 10:00 am	0.8 ± 0.4	2017-12-12
7983804	224	2017-12-05 @ 5:00 pm	2017-12-08 @ 10:00 am	0.6 ± 0.3	2017-12-12
7983824	227	2017-12-05 @ 5:00 pm	2017-12-08 @ 10:00 am	0.7 ± 0.3	2017-12-12
7983816	227	2017-12-05 @ 10:00 am	2017-12-08 @ 10:00 am	< 0.3	2017-12-12
7983831	229	2017-12-05 @ 10:00 am	2017-12-08 @ 10:00 am	0.7 ± 0.3	2017-12-12
7983825	230	2017-12-05 @ 5:00 pm	2017-12-08 @ 10:00 am	1.0 ± 0.4	2017-12-12
7983809	232	2017-12-05 @ 5:00 pm	2017-12-08 @ 10:00 am	1.1 ± 0.4	2017-12-12
7983822	240	2017-12-05 @ 10:00 am	2017-12-08 @ 10:00 am	< 0.3	2017-12-12
7983821	241	2017-12-05 @ 10:00 am	2017-12-08 @ 10:00 am	< 0.3	2017-12-12
7983823	243	2017-12-05 @ 10:00 am	2017-12-08 @ 10:00 am	< 0.3	2017-12-12

Radon test result report for:

**DAMASCUS HIGH SCHOOL  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7983826	244	2017-12-05 @ 10:00 am	2017-12-08 @ 10:00 am	< 0.3	2017-12-12
7983832	249	2017-12-05 @ 6:00 pm	2017-12-08 @ 10:00 am	0.8 ± 0.3	2017-12-12
7983830	253	2017-12-05 @ 6:00 pm	2017-12-08 @ 10:00 am	0.9 ± 0.3	2017-12-12
7983970	3	2017-12-05 @ 9:00 am	2017-12-08 @ 7:00 am	1.3 ± 0.3	2017-12-12
7983968	4	2017-12-05 @ 9:00 am	2017-12-08 @ 7:00 am	0.7 ± 0.3	2017-12-12
7983932	5	2017-12-05 @ 9:00 am	2017-12-08 @ 7:00 am	1.1 ± 0.3	2017-12-12
7983933	7	2017-12-05 @ 9:00 am	2017-12-08 @ 7:00 am	< 0.3	2017-12-12
7983934	8	2017-12-05 @ 9:00 am	2017-12-08 @ 7:00 am	1.0 ± 0.3	2017-12-12
7983939	9	2017-12-05 @ 9:00 am	2017-12-08 @ 7:00 am	1.1 ± 0.3	2017-12-12
7983927	AD OFFICE	2017-12-05 @ 10:00 am	2017-12-08 @ 7:00 am	2.7 ± 0.4	2017-12-12
7983958	ADMIN CONF	2017-12-05 @ 2:00 pm	2017-12-08 @ 8:00 am	1.2 ± 0.3	2017-12-12
7975310	ADMIN SECRET	2017-12-05 @ 2:00 pm	2017-12-08 @ 8:00 am	1.2 ± 0.4	2017-12-12
7983960	AP1	2017-12-05 @ 2:00 pm	2017-12-08 @ 8:00 am	1.6 ± 0.4	2017-12-12
7983955	AP2	2017-12-05 @ 2:00 pm	2017-12-08 @ 8:00 am	1.7 ± 0.4	2017-12-12
7983957	AP3	2017-12-05 @ 2:00 pm	2017-12-08 @ 8:00 am	1.1 ± 0.3	2017-12-12
7983954	ATTENDANCE	2017-12-05 @ 3:00 pm	2017-12-08 @ 8:00 am	1.1 ± 0.4	2017-12-12
7983977	AUDITORIUM	2017-12-05 @ 4:00 pm	2017-12-08 @ 9:00 am	3.2 ± 0.4	2017-12-12
7983973	AUDITORIUM	2017-12-05 @ 4:00 pm	2017-12-08 @ 9:00 am	2.7 ± 0.4	2017-12-12
7983992	AUDITORIUM	2017-12-05 @ 4:00 pm	2017-12-08 @ 9:00 am	3.0 ± 0.4	2017-12-12
7983984	AUDITORIUM	2017-12-05 @ 4:00 pm	2017-12-08 @ 9:00 am	3.5 ± 0.4	2017-12-12
7983907	BOYS PE OFFICE	2017-12-05 @ 11:00 am	2017-12-08 @ 7:00 am	2.5 ± 0.4	2017-12-12
7983909	BSO	2017-12-05 @ 11:00 am	2017-12-08 @ 7:00 am	1.6 ± 0.4	2017-12-12
7983923	BUSIN MNGR	2017-12-05 @ 8:00 am	2017-12-08 @ 8:00 am	1.5 ± 0.3	2017-12-12
7983986	CAFE	2017-12-05 @ 4:00 pm	2017-12-08 @ 9:00 am	2.1 ± 0.4	2017-12-12
7983987	CAFE	2017-12-05 @ 4:00 pm	2017-12-08 @ 9:00 am	2.2 ± 0.4	2017-12-12
7975315	CO	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	1.0 ± 0.3	2017-12-12
7983959	COMP OFFICE	2017-12-05 @ 2:00 pm	2017-12-08 @ 9:00 am	1.5 ± 0.4	2017-12-12
7983966	COMP OFFICE	2017-12-05 @ 2:00 pm	2017-12-08 @ 8:00 am	1.1 ± 0.3	2017-12-12
7983865	COUNS 1	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-12
7983991	COUNS.1	2017-12-05 @ 3:00 pm	2017-12-08 @ 8:00 am	0.7 ± 0.3	2017-12-12
7983995	COUNS1	2017-12-05 @ 8:00 am	2017-12-08 @ 8:00 am	< 0.3	2017-12-12
7983996	COUNS2	2017-12-05 @ 3:00 pm	2017-12-08 @ 8:00 am	0.7 ± 0.3	2017-12-12
7983998	COUNS3	2017-12-05 @ 3:00 pm	2017-12-08 @ 8:00 am	1.1 ± 0.3	2017-12-12
7983997	COUNS4	2017-12-05 @ 3:00 pm	2017-12-08 @ 8:00 am	0.8 ± 0.3	2017-12-12
7983985	COUNS5	2017-12-05 @ 3:00 pm	2017-12-08 @ 8:00 am	0.9 ± 0.3	2017-12-12
7984000	GUID. CONF.RM	2017-12-05 @ 3:00 pm	2017-12-08 @ 9:00 am	0.8 ± 0.3	2017-12-12
7983922	GYM1	@	@		

Radon test result report for:

**DAMASCUS HIGH SCHOOL  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7983929	GYM1	2017-12-05 @ 10:00 am	2017-12-08 @ 7:00 am	2.0 ± 0.3	2017-12-12
7983906	GYM1	2017-12-05 @ 10:00 am	2017-12-08 @ 7:00 am	1.7 ± 0.4	2017-12-12
7983918	GYM2	2017-12-05 @ 10:00 am	2017-12-08 @ 7:00 am	1.5 ± 0.3	2017-12-12
7983919	GYM2	2017-12-05 @ 10:00 am	2017-12-08 @ 7:00 am	2.0 ± 0.3	2017-12-12
7983920	GYM2	2017-12-05 @ 10:00 am	2017-12-08 @ 7:00 am	1.8 ± 0.3	2017-12-12
7983928	GYM2	2017-12-05 @ 10:00 am	2017-12-08 @ 7:00 am	1.7 ± 0.3	2017-12-12
7975321	HUB	2017-12-05 @ 1:00 pm	2017-12-08 @ 8:00 am	0.7 ± 0.3	2017-12-12
7975316	IMC WORKROOM	2017-12-05 @ 1:00 pm	2017-12-08 @ 8:00 am	< 0.3	2017-12-12
7983956	NURSE	2017-12-05 @ 2:00 pm	2017-12-08 @ 8:00 am	1.1 ± 0.3	2017-12-12
7984045	OFFICE BLANK	2017-12-05 @ 1:00 pm	2017-12-08 @ 1:00 pm	< 0.3	2017-12-12
7984047	OFFICE BLANK	2017-12-05 @ 1:00 pm	2017-12-08 @ 1:00 pm	< 0.3	2017-12-12
7975311	PRINCIPAL	2017-12-05 @ 2:00 pm	2017-12-08 @ 8:00 am	1.2 ± 0.3	2017-12-12
7975312	PRINCIPAL	2017-12-05 @ 2:00 pm	2017-12-08 @ 8:00 am	1.2 ± 0.3	2017-12-12
7983993	REGISTRAR	2017-12-05 @ 3:00 pm	2017-12-08 @ 8:00 am	1.1 ± 0.3	2017-12-12
7975308	SIDE OFFICE	2017-12-05 @ 3:00 pm	2017-12-08 @ 8:00 am	1.2 ± 0.4	2017-12-12
7983963	SPEC. ED. CONF.	2017-12-05 @ 2:00 pm	2017-12-08 @ 10:00 am	0.9 ± 0.3	2017-12-12
7983915	WEIGHT ROOM	2017-12-05 @ 11:00 am	2017-12-08 @ 7:00 am	1.9 ± 0.4	2017-12-12
7983930	GYM1	@	@		



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase

Names of Schools:

1. John T. Baker Middle School
2. Cedar Grove Elementary School
3. Clarksburg Elementary School
4. Clarksburg Elementary School Annex
5. Clarksburg High School
6. Clearspring Elementary School
7. Damascus Elementary School
8. Damascus High School
9. Dr. Charles R. Drew Elementary School
10. Facilities Maintenance Depot - Shop
11. Lake Seneca Elementary School
12. Laytonsville Elementary School
13. Watkins Mill Elementary School
14. Watkins Mill High School
15. Whetstone Elementary School

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	Date	Initials
Radon Test Kits Deployed	12/05/17	JM
Radon Test Kits Collected	12/08/17	JM
Radon Test Kits Shipped to Lab*	12/08/17	JM
Radon Test Kits Received by Lab*	12/13/17	JM

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

Radon test result report for:**TRANSIT 2****MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7193838	TRANSIT 1	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979384	TRANSIT 10	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979385	TRANSIT 11	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7984056	TRANSIT 12	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7983834	TRANSIT 13	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7194097	TRANSIT 14	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7194092	TRANSIT 15	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7193840	TRANSIT 16	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979072	TRANSIT 17	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979071	TRANSIT 18	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979065	TRANSIT 19	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	0.6 ± 0.4	2017-12-13
7978194	TRANSIT 2	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7985660	TRANSIT 20	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7985661	TRANSIT 21	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	0.7 ± 0.4	2017-12-13
7193843	TRANSIT 22	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7984055	TRANSIT 23	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7983813	TRANSIT 24	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7983827	TRANSIT 25	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7978193	TRANSIT 3	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7978189	TRANSIT 4	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	0.5 ± 0.4	2017-12-13
7986187	TRANSIT 5	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7986188	TRANSIT 6	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7986177	TRANSIT 7	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979077	TRANSIT 8	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979386	TRANSIT 9	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13

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December 19, 2017

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

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Radon test result report for:

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

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

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

# EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 182393

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

Date Start: 12/1/17 Date Stop: 12/4/17 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 1049 Time Stop: 1049 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

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

7975075, 7975064, 7975063, \_\_\_\_\_

7975065, 7975069, 7975070 \_\_\_\_\_

F4 Right

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

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

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

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

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

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

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





### MCPS RADON TESTING

#### Executive Summary: Damascus High School

Date of Test Report:	10/18/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	29
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	2.0

#### Project Status:

Post remediation testing and follow-up testing after HVAC update completed;  
no further action at this time



October 18, 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: Damascus High School  
25921 Ridge Road  
Damascus, Maryland 20872

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 Damascus High School, located at 25921 Ridge Road in Damascus, Maryland 20872 (subject site).

**Scope of Services:**

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

KCI visited the site on September 27, 2016 and deployed thirty-seven (37) 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,
- Follow-up sampling of a school that had HVAC modifications over the summer.

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)
- Determine if the HVAC project changed previously detected radon levels

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

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

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

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

### **Results:**

The results of the radon test analysis indicated the following:

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

Notes:

D- Duplicate sample

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

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

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

Sincerely,



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

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

# ATTACHMENT A

## Floor Plan With Test Locations

# ATTACHMENT B

## Radon Test Summary Spreadsheet

<b>Radon Testing Results</b>		
<b>Damascus High School</b>		
<b>Test Period: 09/27/16-09/30/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7802267	102	< 0.3
7802256	103	0.8
7802265	104	< 0.3
7802257	105	< 0.3
7802292	108	< 0.3
7802300	109	0.8
7802279	110	< 0.3
7802255	111	< 0.3
7802262	111	< 0.3
7802288	116	0.6
7802273	117	< 0.3
7802261	119	< 0.3
7802289	144	1.0
7802295	164	< 0.3
7802280	165	< 0.3
7802298	166	< 0.3
7802282	ASST PRIN 3	0.9
7802285	ASST PRINC 1	0.7
7802294	ASST PRINC2	0.7
7802281	ATTENDANCE	< 0.3
7801952	AUDITORIUM	0.8
7802274	AUDITORIUM	0.9
7802277	AUDITORIUM	0.9
7802275	BUSINESS MANAGER	0.8
7802283	BUSINESS OFFICE	0.5
7802291	CAFETERIA	2.0
7802293	CAFETERIA	1.4
7802260	FINANCIAL ASST	0.5
7802286	MAIL ROOM	< 0.3
7802299	NURSE	0.6
7802287	SPARE ROOM	0.6
7802284	SPEC EDU CONF	< 0.3
7802276	STAFF LOUNGE	2.0

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Damascus High School</b>		
<b>Test Period: 09/27/16-09/30/16</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7801951	D (102)	< 0.3
7802290	D (117)	< 0.3
7802296	D (NURSE)	< 0.3
7802297	FB (NURSE)	< 0.3

Table Note:

\* Missing or Compromised Sample



# ATTACHMENT C

## Laboratory Analytical Results

Radon test result report for:  
**DAMASCUS HIGH SCHOOL**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7802267	102	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7801951	102	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7802256	103	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	0.8 ± 0.3	2016-10-03
7802265	104	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7802257	105	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7802292	108	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7802300	109	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	0.8 ± 0.2	2016-10-03
7802279	110	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7802255	111	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7802262	111	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7802288	116	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	0.6 ± 0.2	2016-10-03
7802273	117	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7802290	117	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7802261	119	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7802289	144	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	1.0 ± 0.3	2016-10-03
7802295	164	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7802280	165	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7802298	166	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7802282	ASST PRIN 3	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	0.9 ± 0.2	2016-10-03
7802285	ASST PRINC 1	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	0.7 ± 0.2	2016-10-03
7802294	ASST PRINC2	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	0.7 ± 0.2	2016-10-03
7802281	ATTENDANCE	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7802293	CAFE	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	1.4 ± 0.2	2016-10-03
7802277	AUDITORIUM	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	0.9 ± 0.2	2016-10-03
7802274	AUDITORIUM	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	0.9 ± 0.2	2016-10-03
7802291	CAFE	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	2.0 ± 0.3	2016-10-03
7801952	AUDITORIUM	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	0.8 ± 0.2	2016-10-03
7802275	BUSINESS MANAGER	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	0.8 ± 0.2	2016-10-03
7802283	BUSINESS OFFICE	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	0.5 ± 0.2	2016-10-03
7802260	FINANCIAL ASST	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	0.5 ± 0.2	2016-10-03
7802286	MAIL ROOM	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7802299	NURSE	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	0.6 ± 0.2	2016-10-03
7802296	NURSE	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7802297	NURSE	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7802287	SPARE ROOM	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	0.6 ± 0.2	2016-10-03
7802284	SPEC EDU CONF	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7802276	STAFF LOUNGE	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	2.0 ± 0.3	2016-10-03

October 7, 2016

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

Radon test result report for:

**MCPS Radon**

**Phase 18 Office Blanks**

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

Radon test result report for:

**MCPS Radon****Phase 18 Transit Blanks**

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

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October 12, 2016

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

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

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

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

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

**EXPOSURE IN BOWSER-MORNER RADON CHAMBER**

CLIENT KCI Technologies Inc. Job Number 176788

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

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

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

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

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

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

F3 Left

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

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

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

\_\_\_\_\_

\_\_\_\_\_

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

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

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

\_\_\_\_\_

\_\_\_\_\_

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



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 18

Name of Schools:

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

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

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



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 18

Name of Schools:

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

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

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



**RADON SCREENING SURVEY – ADDITIONAL FOLLOW-UP DAMASCUS HIGH SCHOOL**

25921 Ridge Road, Damascus, Maryland 20872

**EXECUTIVE SUMMARY**

Date of Test Report:	4/20/16 Follow-Up
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	8
# Rooms $\geq$ 4.0 pCi/L:	1
Low Value:	1.5
High Value:	10.4
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) 1/26/16 Initial	Result (pCi/L) 3/21/16 Follow-Up	Result (pCi/L) 4/20/16 Follow-Up	Average Result (pCi/L)
Assistant Principal 1 (Attendance)	1.6	2.0	1.6	1.8
Assistant Principal 2	2.3	3.0	2.2	2.5
Assistant Principal 3	12.3	1.8	10.4	8.2
Assistant Principal 4	3.0	6.0	1.5	3.5
152	No Access	No Access	2.4	2.4
Nurse	4.8	4.0	Not Sampled	4.4
143	--- Missing	0.9	Not Sampled	0.9
143	--- Missing	1.3	Not Sampled	1.3
143 OFF	--- Missing	No Access	Not Sampled	n/a
149	--- Missing	1.1	Not Sampled	1.1
150	--- Missing	<0.3	Not Sampled	<0.3
160	--- Missing	0.8	Not Sampled	0.8
Coach Office 1	--- Missing	1.8 Tampered	2.1	2.0
Coach Office 2	2.8	Not Sampled	2.4	2.6
Guidance	--- Missing	<0.3	Not Sampled	<0.3
Gym 1	--- Missing	--- Missing	Not Sampled	n/a
101	No access	0.7	Not Sampled	0.7
103	No access	0.8	Not Sampled	0.8
105	No access	<0.3	Not Sampled	<0.3

106	No access	No Access	Not Sampled	n/a
109	No access	No Access	Not Sampled	n/a
110	No access	<0.3	Not Sampled	<0.3
113	No access	<0.3	Not Sampled	<0.3
164	No access	3.4	Not Sampled	3.4
165	No access	6.1 Tampered	3.9	5.0
Security	No access	0.6	Not Sampled	0.6

n/a – location will be sampled at the time of post-remediation sampling



### MCPS RADON TESTING

#### Executive Summary: Damascus High School

Date of Test Report:	4/20/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	8
# Rooms $\geq$ 4.0 pCi/L:	1
Low Value:	1.5
High Value:	10.4

Rooms with results  $\geq$  4.0 pCi/L:  
Assistant Principal 3 (10.4 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 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 # 12146341.34

Location: Damascus High School  
25921 Ridge Road  
Damascus, Maryland 20872

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 Damascus High School, located at 25921 Ridge Road in Damascus, Maryland 20872 (subject site).

**Scope of Services:**

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

KCI visited the site on March 29, 2016 and deployed nine (9) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

KCI returned to the site on April 1, 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:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
$\geq 4.0$ pCi/L	Assistant Principal 3	10.4
$< 4.0$ 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 13 testing. Office blanks were not submitted under each school individually.

<b>Radon Testing Results</b>		
<b>Damascus High School</b>		
<b>Test Period: 03/29/16-04/01/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
3029292	152	2.4
3029276	152	1.7
3029226	165	3.9
3029299	ASSIST. PRINCIPAL #2	2.2
3029226	ASSIST. PRINCIPAL #1	1.6
3029230	ASSIST. PRINCIPAL #3	10.4
3029229	ASSIST. PRINCIPAL #4	1.5
3029228	COACH OFFICE 1	2.1
3029236	COACH OFFICE 2	2.4

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

NRPP 10511AL  
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 12146341

KCI Technologies  
936 Ridgebrook Rd  
Sparks MD 21152

Damascus H. S.  
25921 Ridge Rd  
Damascus MD 20872

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3019509	3029228	03/29/2016 8:36 am 04/01/2016 8:04 am	Coach Office 1 Basement	2.1
3019510	3029236	03/29/2016 8:39 am 04/01/2016 8:35 am	Coach Office 2 Basement	2.7
3019511	3029226	03/29/2016 8:48 am 04/01/2016 8:39 am	Unit 165 First Floor	3.9
3019512	3029299	03/29/2016 8:55 am 04/01/2016 8:47 am	Asst. Principal #2 First Floor	2.2
3019513	3029224	03/29/2016 9:14 am 04/01/2016 8:48 am	Asst. Principal #1 First Floor	1.6
3019514	3029230	03/29/2016 9:18 am 04/01/2016 8:46 am	Asst. Principal #3 First Floor	10.4
3019515	3029229	03/29/2016 9:22 am 04/01/2016 8:44 am	Asst. Principal #4 First Floor	1.5
3019516	3029276	03/29/2016 9:27 am 04/01/2016 8:42 am	Unit 152 First Floor	1.7
3019517	3029292	03/29/2016 9:29 am 04/01/2016 8:42 am	Unit 152 First Floor	2.4

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

Distributed by: KCI Technologies, Inc.

Date Received: 04/05/2016 Date Logged: 04/05/2016 Date Analyzed: 04/05/2016 Date Reported: 04/06/2016

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.

**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: Damascus H.S.  
 Address: 25921 Ridge Rd.  
 Address: [Blank]  
 City / Town: Damascus  
 State/Province Postal Code: MD 20872  
 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
	3029228			0	Coach office 1	72°	3/29/16	08:36	4/01/16	08:04	
	3029236			0	Coach office 2			08:39		08:35	
	3029226		165	1				08:48		08:39	
	3029249			1	Assist. Principal #2			08:55		08:47	
	3029224			1	Assist. Principal #2			09:14		08:48	
	3029230			1	Assist. Principal #3			09:18		08:46	
	3029229			1	Assist. Principal #4			09:22		08:44	
	3029276		152	1				09:29		08:42	
	3029292		152	1				09:29		08:42	

NRPP 10511AL  
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 12146341

KCI Technologies  
936 Ridgebrook Rd  
Sparks MD 21152

MCPS PHASE 13 Office Blank

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3019508	3029183	03/29/2016 9:40 am 04/01/2016 9:40 am	Office First Floor	<0.4

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

Distributed by: KCI Technologies, Inc.

Date Received: 04/05/2016 Date Logged: 04/05/2016 Date Analyzed: 04/05/2016 Date Reported: 04/05/2016

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:

KCI Technologies  
936 Ridgebrook Rd  
Sparks MD 21152

MCPS  
Transit Blanks

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

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

Distributed by: KCI Technologies, Inc.

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

Report Reviewed By: Christie Bates

Report Approved By: Carolyn D. Koke

Carolyn D. Koke, President, AccuStar Labs

**Disclaimer:**

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

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

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

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

**Test Site Info**

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

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

Multi-Page Report Y-N

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

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

1/27/2016  
 KCI Technologies, Inc.  
 3010588 3028953 ACPC275B EXP12/31/2018

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  
 Attention: James Mouldale

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 Fax: \_\_\_\_\_  
 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: Damascus High School

Date of Test Report:	3/21/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	20
# Rooms $\geq$ 4.0 pCi/L:	3
Low Value:	< 0.3
High Value:	6.1

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

Room 165 (6.1 pCi/L), Assistant Principal 4 (6.0 pCi/L), Nurse's Office (4.0 pCi/L).

#### Project Status:

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

Re-testing completed; locked/inaccessible rooms need testing (Rooms 143 Off., 106, 109, and 152). Re-

Re-test needed for initial results  $\geq$  4.0 pCi/L (Room 165).

Re-test needed for compromised samples (Coaches Office)



March 21, 2016

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

Re: **Radon Testing Services**  
KCI Job # 12146341.29

Location: Damascus High School  
25921 Ridge Road  
Damascus, Maryland 20872

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 Damascus High School, located at 25921 Ridge Road in Damascus, Maryland 20872 (subject site).

**Scope of Services:**

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

KCI visited the site on February 22, 2016 and deployed 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 Bowser-Morner, Inc. as spike samples. The spiked tests were exposed to a known radon concentration by Bowser-Morner prior to being returned to the laboratory for analysis.

KCI returned to the site on February 25, 2016 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936

Butler Bridge Road, Mills River, North Carolina.

**Evaluation of Testing Conditions:**

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

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

KCI also conducted observations of field conditions which could affect the results of the test and compiled weather data for the testing period. Note that strong storms and heavy rainfall were recorded during the test period. The unusual weather conditions may have resulted in atypical radon test results for this facility.

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

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

**Results:**

The results of the radon test analysis indicated the following:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
<b><math>\geq 4.0</math> pCi/L</b>	165	6.1
	Assistant Principal 4	6.0
	Nurse's Office	4.0
<b><math>&lt; 4.0</math> pCi/L</b>	See Attachment B	

Notes:  
D- Duplicate sample

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

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

Our professional services have been performed in accordance with customary principles and practices in the field of industrial hygiene and engineering. If you have any questions or comments regarding this

report, please feel free to contact me at (410) 316-7800.

Sincerely,



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

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



# ATTACHMENT A

## Floor Plan With Test Locations

# ATTACHMENT B

## Radon Test Summary Spreadsheet

**Table Notes:**

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank\*

PM- Project Manager

QC- Quality Control

\*Office blanks were submitted at a rate of 1% for all samples deployed in Phase 9 testing. Office blanks were not submitted under each school individually.

<b>Radon Testing Results</b>		
<b>Damascus High School</b>		
<b>Test Period: 02/22/16-02/25/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7726717	101	0.7
7726702	103	0.8
7721412	105	< 0.3
7721420	110	< 0.3
7721417	113	< 0.3
7726765	143	0.9
7726763	149	1.1
7721437	150	< 0.3
7726799	160	0.8
7721418	164	3.4
7726771	* 165 (Tampered)	6.1
7731668	ASSIST PRIN	2.0
7726781	ASSIST PRIN 2	3.0
7721419	ASSIST PRIN 3	1.8
7726800	ASSIST PRIN 4	6.0
7721434	* COACH OFFICE (Tampered)	1.8
7726766	GUIDENCE	< 0.3
7721438	* GYM 1 (Missing)	-
7726798	* GYM 1 (Missing)	-
7721421	* GYM 1 (Missing)	-
7721423	* GYM 1 (Missing)	-
7726767	NURSE	4.0
7731077	SECURITY	0.6

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Damascus High School</b>		
<b>Test Period: 02/22/16-02/25/16</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7721415	D (143)	1.3
7726759	D (SECURITY)	< 0.3
7721416	FB (150)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

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

Radon test result report for:  
**DAMASCUS HIGH SCHOOL  
 MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7726717	101	2016-02-22 @ 9:00 am	2016-02-25 @ 8:00 am	0.7 ± 0.3	2016-02-29
7726702	103	2016-02-22 @ 9:00 am	2016-02-25 @ 8:00 am	0.8 ± 0.3	2016-02-29
7721412	105	2016-02-22 @ 9:00 am	2016-02-25 @ 8:00 am	< 0.3	2016-02-29
7721420	110	2016-02-22 @ 10:00 am	2016-02-25 @ 7:00 am	< 0.3	2016-02-29
7721417	113	2016-02-22 @ 10:00 am	2016-02-25 @ 7:00 am	< 0.3	2016-02-29
7721415	143	2016-02-22 @ 9:00 am	2016-02-25 @ 8:00 am	1.3 ± 0.3	2016-02-29
7726765	143	2016-02-22 @ 9:00 am	2016-02-25 @ 8:00 am	0.9 ± 0.3	2016-02-29
7726763	149	2016-02-22 @ 9:00 am	2016-02-25 @ 8:00 am	1.1 ± 0.3	2016-02-29
7721416	150	2016-02-22 @ 9:00 am	2016-02-25 @ 8:00 am	< 0.3	2016-02-29
7721437	150	2016-02-22 @ 9:00 am	2016-02-25 @ 8:00 am	< 0.3	2016-02-29
7726799	160	2016-02-22 @ 9:00 am	2016-02-25 @ 8:00 am	0.8 ± 0.3	2016-02-29
7721418	164	2016-02-22 @ 10:00 am	2016-02-25 @ 8:00 am	3.4 ± 0.4	2016-02-29
7726771	165	2016-02-22 @ 10:00 am	2016-02-25 @ 8:00 am	6.1 ± 0.5	2016-02-29
7731668	ASSIST PRIN	2016-02-22 @ 8:00 am	2016-02-25 @ 7:00 am	2.0 ± 0.4	2016-02-29
7726781	ASSIST PRIN 2	2016-02-22 @ 8:00 am	2016-02-25 @ 7:00 am	3.0 ± 0.4	2016-02-29
7721419	ASSIST PRIN 3	2016-02-22 @ 9:00 am	2016-02-25 @ 7:00 am	1.8 ± 0.4	2016-02-29
7726800	ASSIST PRIN 4	2016-02-22 @ 9:00 am	2016-02-25 @ 7:00 am	6.0 ± 0.5	2016-02-29
7721434	COACH OFFICE	2016-02-22 @ 9:00 am	2016-02-25 @ 8:00 am	1.8 ± 0.4	2016-02-29
7726766	GUIDENCE	2016-02-22 @ 9:00 am	2016-02-25 @ 7:00 am	< 0.3	2016-02-29
7721421	GYM 1	@	@		
7721423	GYM 1	@	@		
7721438	GYM 1	@	@		
7726798	GYM 1	@	@		
7726767	NURSE	2016-02-22 @ 9:00 am	2016-02-25 @ 7:00 am	4.0 ± 0.4	2016-02-29
7726759	SECURITY	2016-02-22 @ 10:00 am	2016-02-25 @ 8:00 am	< 0.3	2016-02-29
7731077	SECURITY	2016-02-22 @ 10:00 am	2016-02-25 @ 8:00 am	0.6 ± 0.3	2016-02-29

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

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

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

---

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



---

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

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

---

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

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

February 23, 2016 **LABORATORY ANALYSIS REPORT** \*\*

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

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

February  
15,  
2016

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

Spike Sample Laboratory Results

Radon test result report for:  
**MCPS**

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

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

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

**EXPOSURE IN BOWSER-MORNER RADON CHAMBER**

CLIENT KCF Technologies Inc. Job Number 173704

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

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

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

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

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

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

ε3 Left

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

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

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

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

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

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

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



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 9

Name of Schools:

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

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

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



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 9

Name of Schools:

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

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

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



### MCPS RADON TESTING

#### Executive Summary: Damascus High School

Date of Test Report:	1/26/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	113
# Rooms $\geq$ 4.0 pCi/L:	2
Low Value:	< 0.3
High Value:	12.3

Rooms with results  $\geq$  4.0 pCi/L:  
Assistant Principal (12.3 pCi/L), Nurse (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.



January 26, 2016

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

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

Location: Damascus High School  
25921 Ridge Road  
Damascus, MD 20872

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 Damascus High School, located at 25921 Ridge Road in Damascus, Maryland 20872 (subject site).

**Scope of Services:**

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

KCI visited the site on December 28, 2015 and deployed one hundred twenty-eight (128) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

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



Butler Bridge Road, Mills River, North Carolina.

**Evaluation of Testing Conditions:**

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

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

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

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

**Results:**

The results of the radon test analysis indicated the following:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
<b><math>\geq 4.0</math> pCi/L</b>	Assistant Principal	12.3
	Nurse	4.8
<b><math>&lt; 4.0</math> pCi/L</b>	See Attachment B	

Notes:  
D- Duplicate sample

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

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

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

Sincerely,



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

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

# ATTACHMENT B

## Radon Test Summary Spreadsheet

**Table Notes:**

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

<b>Radon Testing Results</b>		
<b>Damascus Hs</b>		
<b>Test Period: 12/28/15-12/31/15</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7708489	1	0.7
7708488	2	< 0.3
7708492	3	1.3
7708490	4	< 0.3
7708493	5	< 0.3
7708494	8	< 0.3
7708481	9	1.6
7708479	10	1.6
7708484	11	< 0.3
7708485	12	1.1
7708413	102	0.5
7708408	112	0.6
7708423	112	0.6
7708402	114	< 0.3
7708403	115	< 0.3
7708407	116	0.9
7708433	117	< 0.3
7708496	121	0.9
7708499	121	1.2
7707173	131	< 0.3
7707182	132	0.5
7707156	134	< 0.3
7707186	140	1.3
7707168	145	1.2
7707193	146	1.6
7707158	151	< 0.3
7707157	153	< 0.3
7707155	154	< 0.3
7707185	156	1.8
7707154	157	< 0.3
7707178	158	< 0.3
7707159	161	< 0.3
7707200	162	< 0.3
7707194	163	< 0.3
7707170	170	1.1
7708469	201	< 0.3
7708470	203	0.6
7708463	208	< 0.3
7708466	209	< 0.3
7708486	222	1.1
7708498	228	< 0.3
7708451	230	< 0.3
7708471	241	< 0.3
7708450	244	< 0.3
7708473	254	< 0.3
7707188	* 143 (missing)	0

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Damascus Hs</b>		
<b>Test Period: 12/28/15-12/31/15</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7707190	* 143 (missing)	0
7707189	* 143 OFF (missing)	0
7707160	146 OFF	1.5
7707164	* 149 (missing)	0
7707161	* 150 (missing)	0
7707177	155A	1.5
7707153	155B	< 0.3
7707197	* 160 (missing)	0
7707181	AD	2
7708404	ADMIN SEC	1.2
7708414	ASST PRINCIPAL	12.3
7708426	ASST PRINCIPAL	2.3
7708428	ASST PRINCIPAL	3
7708416	ATTENDANCE	1.6
7707183	AUDITORIUM	1.1
7708446	AUDITORIUM	1.3
7708432	BAND OFFICE	< 0.3
7708412	BAND ROOM	0.9
7708421	BAND ROOM	< 0.3
7707180	BLDG SERV	0.8
7707162	BUSINESS CONFER	1.6
7708401	CAFATERIA	0.7
7708411	CAFATERIA	0.5
7708429	CAFATERIA	0.8
7708440	CAFATERIA	0.6
7707172	CAREER CENTER	< 0.3
7708442	CHORUS	< 0.3
7708441	CHORUS ROOM	< 0.3
7707171	COACH OFFICE	2.8
7707175	* COACH OFFICE (missing)	0
7708417	CONFERENCE RM	1.6
7708500	CONTROL ROOM	1.2
7707174	DANCE	0.7
7707179	DANCE	1.1
7708418	GUIDENCE	< 0.3
7708435	GUIDENCE	< 0.3
7708436	GUIDENCE	0.6
7708437	GUIDENCE	< 0.3
7708438	GUIDENCE	< 0.3
7708443	GUIDENCE	0.7
7708444	GUIDENCE	< 0.3
7708445	GUIDENCE	0.5
7708419	* GUIDENCE (missing)	0
7707163	GYM 1	< 0.3
7707165	GYM 1	1
7707192	* GYM 1 (missing)	0
7707184	GYM 2	< 0.3
7707187	GYM 2	1
7707195	GYM 2	1.2
7708424	HEALTH RM	3

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Damascus Hs</b>		
<b>Test Period: 12/28/15-12/31/15</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7708497	LECTURE ROOM	0.7
7708487	LECTURE ROOM	0.6
7708425	MAIL ROOM	3
7707150	MAIN OFFICE	1.3
7708448	MAIN OFFICE	2.3
7708427	NURSE	4.8
7708434	PRACTICE	< 0.3
7708409	PRINCIPAL	1
7708410	SHOP	1.2
7708430	SHOP	1.1
7708431	SHOP OFFICE	1.1
7708406	STAFF LOUNGE	0.6
7707167	TECH ROOM	< 0.3
7708420	TECH ROOM	< 0.3
7707199	WEIGHT	< 0.3
7707147	WRESTLING	< 0.3
7707166	WRESTLING	0.6

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Damascus Hs</b>		
<b>Test Period: 12/28/15-12/31/15</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7708491	D (10)	1.5
7707176	D (161)	< 0.3
7708439	D (BAND RM)	< 0.3
7708405	D (CAFATERIA)	< 0.3
7708482	D (CONFERENCE ROOM)	1.7
7708415	D (GUIDENCE)	< 0.3
7707169	D (GYM 2)	1.2
7708483	D (MAIN OFFICE)	1.9
7707191	D (WEIGHT)	< 0.3
7708478	FB (121)	< 0.3
7707198	FB (162)	< 0.3
7708422	FB (BAND ROOM)	< 0.3
7708477	FB (CAREER CENTER)	< 0.3
7710526	OB (0)	< 0.3
7710532	OB (0)	< 0.3

Table Note:

\* Missing or Compromised Sample



# ATTACHMENT C

## Laboratory Analytical Results

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

Radon test result report for:  
**DAMASCUS HS**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7710526	0	2015-12-28 @ 3:00 pm	2015-12-31 @ 1:00 pm	< 0.3	2016-01-04
7710532	0	2015-12-28 @ 3:00 pm	2015-12-31 @ 1:00 pm	< 0.3	2016-01-04
7708489	1	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	0.7 ± 0.3	2016-01-04
7708491	10	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	1.5 ± 0.3	2016-01-04
7708479	10	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	1.6 ± 0.4	2016-01-04
7708413	102	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	0.5 ± 0.3	2016-01-04
7708484	11	2015-12-28 @ 11:00 am	2015-12-31 @ 11:00 am	< 0.3	2016-01-04
7708423	112	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	0.6 ± 0.3	2016-01-04
7708408	112	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	0.6 ± 0.3	2016-01-04
7708402	114	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7708403	115	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7708407	116	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	0.9 ± 0.3	2016-01-04
7708433	117	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7708485	12	2015-12-28 @ 11:00 am	2015-12-31 @ 11:00 am	1.1 ± 0.3	2016-01-04
7708496	121	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	0.9 ± 0.3	2016-01-04
7708499	121	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	1.2 ± 0.3	2016-01-04
7708478	121	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7707173	131	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7707182	132	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	0.5 ± 0.3	2016-01-04
7707156	134	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7707186	140	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	1.3 ± 0.3	2016-01-04
7707188	143	@	@		
7707190	143	@	@		
7707189	143 OFF	@	@		
7707168	145	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	1.2 ± 0.3	2016-01-04
7707193	146	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	1.6 ± 0.3	2016-01-04
7707160	146 OFF	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	1.5 ± 0.3	2016-01-04
7707164	149	@	@		
7707161	150	@	@		
7707158	151	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7707157	153	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7707155	154	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7707177	155A	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	1.5 ± 0.3	2016-01-04
7707153	155B	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7707185	156	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	1.8 ± 0.4	2016-01-04
7707154	157	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7707178	158	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-04

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

Radon test result report for:  
**DAMASCUS HS**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7707197	160	@	@		
7707176	161	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7707159	161	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7707198	162	2015-12-28 @ 9:00 am	2015-12-31 @ 11:00 am	< 0.3	2016-01-04
7707200	162	2015-12-28 @ 9:00 am	2015-12-31 @ 11:00 am	< 0.3	2016-01-04
7707194	163	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7707170	170	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	1.1 ± 0.3	2016-01-04
7708488	2	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7708469	201	2015-12-28 @ 12:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-04
7708470	203	2015-12-28 @ 12:00 pm	2015-12-31 @ 11:00 am	0.6 ± 0.3	2016-01-04
7708463	208	2015-12-28 @ 12:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-04
7708466	209	2015-12-28 @ 12:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-04
7708486	222	2015-12-28 @ 12:00 pm	2015-12-31 @ 11:00 am	1.1 ± 0.3	2016-01-04
7708498	228	2015-12-28 @ 12:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-04
7708451	230	2015-12-28 @ 12:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-04
7708471	241	2015-12-28 @ 12:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-04
7708450	244	2015-12-28 @ 12:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-04
7708473	254	2015-12-28 @ 12:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-04
7708492	3	2015-12-28 @ 11:00 am	2015-12-31 @ 11:00 am	1.3 ± 0.3	2016-01-04
7708490	4	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7708493	5	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7708494	8	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7708481	9	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	1.6 ± 0.3	2016-01-04
7707181	AD	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	2.0 ± 0.4	2016-01-04
7708404	ADMIN SEC	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	1.2 ± 0.3	2016-01-04
7708426	ASST PRINCIPAL	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	2.3 ± 0.4	2016-01-04
7708428	ASST PRINCIPAL	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	3.0 ± 0.4	2016-01-04
7708414	ASST PRINCIPAL	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	12.3 ± 0.8	2016-01-04
7708416	ATTENDANCE	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	1.6 ± 0.3	2016-01-04
7707183	AUDITORIUM	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	1.1 ± 0.3	2016-01-04
7708446	AUDITORIUM	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	1.3 ± 0.3	2016-01-04
7708432	BAND OFFICE	2015-12-28 @ 10:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7708439	BAND RM	2015-12-28 @ 10:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7708421	BAND ROOM	2015-12-28 @ 10:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7708422	BAND ROOM	2015-12-28 @ 10:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7708412	BAND ROOM	2015-12-28 @ 10:00 am	2015-12-31 @ 10:00 am	0.9 ± 0.3	2016-01-04
7707180	BLDG SERV	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	0.8 ± 0.3	2016-01-04

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

Radon test result report for:  
**DAMASCUS HS**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7707162	BUSINESS CONFER	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	1.6 ± 0.4	2016-01-04
7708429	CAFATERIA	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	0.8 ± 0.3	2016-01-04
7708401	CAFATERIA	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	0.7 ± 0.3	2016-01-04
7708405	CAFATERIA	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7708411	CAFATERIA	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	0.5 ± 0.3	2016-01-04
7708440	CAFATERIA	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	0.6 ± 0.3	2016-01-04
7707172	CAREER CENTER	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7708477	CAREER CENTER	2015-12-28 @ 12:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7708442	CHORUS	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7708441	CHORUS ROOM	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7707175	COACH OFFICE	@	@		
7707171	COACH OFFICE	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	2.8 ± 0.4	2016-01-04
7708417	CONFERENCE RM	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	1.6 ± 0.3	2016-01-04
7708482	CONFERENCE ROOM	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	1.7 ± 0.4	2016-01-04
7708500	CONTROL ROOM	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	1.2 ± 0.3	2016-01-04
7707174	DANCE	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	0.7 ± 0.3	2016-01-04
7707179	DANCE	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	1.1 ± 0.3	2016-01-04
7708419	GUIDENCE	@	@		
7708418	GUIDENCE	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7708415	GUIDENCE	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7708435	GUIDENCE	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7708436	GUIDENCE	2015-12-28 @ 10:00 am	2015-12-31 @ 10:00 am	0.6 ± 0.3	2016-01-04
7708437	GUIDENCE	2015-12-28 @ 10:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7708438	GUIDENCE	2015-12-28 @ 10:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7708443	GUIDENCE	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	0.7 ± 0.3	2016-01-04
7708444	GUIDENCE	2015-12-28 @ 10:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7708445	GUIDENCE	2015-12-28 @ 10:00 am	2015-12-31 @ 10:00 am	0.5 ± 0.3	2016-01-04
7707192	GYM 1	@	@		
7707163	GYM 1	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7707165	GYM 1	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	1.0 ± 0.3	2016-01-04
7707184	GYM 2	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7707187	GYM 2	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	1.0 ± 0.3	2016-01-04
7707195	GYM 2	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	1.2 ± 0.3	2016-01-04
7707169	GYM 2	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	1.2 ± 0.3	2016-01-04
7708424	HEALTH RM	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	3.0 ± 0.4	2016-01-04
7708487	LECTURE ROOM	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	0.6 ± 0.3	2016-01-04
7708497	LECTURE ROOM	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	0.7 ± 0.3	2016-01-04

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

Radon test result report for:

**DAMASCUS HS  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7708425	MAIL ROOM	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	3.0 ± 0.4	2016-01-04
7707150	MAIN OFFICE	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	1.3 ± 0.3	2016-01-04
7708483	MAIN OFFICE	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	1.9 ± 0.4	2016-01-04
7708448	MAIN OFFICE	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	2.3 ± 0.4	2016-01-04
7708427	NURSE	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	4.8 ± 0.5	2016-01-04
7708434	PRACTICE	2015-12-28 @ 10:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7708409	PRINCIPAL	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	1.0 ± 0.3	2016-01-04
7708430	SHOP	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	1.1 ± 0.3	2016-01-04
7708410	SHOP	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	1.2 ± 0.3	2016-01-04
7708431	SHOP OFFICE	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	1.1 ± 0.3	2016-01-04
7708406	STAFF LOUNGE	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	0.6 ± 0.3	2016-01-04
7708420	TECH ROOM	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7707167	TECH ROOM	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7707191	WEIGHT	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7707199	WEIGHT	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7707147	WRESTLING	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7707166	WRESTLING	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	0.6 ± 0.3	2016-01-04

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

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

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

December  
23,  
2015

**LABORATORY ANALYSIS  
REPORT \*\***

Spike Sample Laboratory Results

Radon test result report for:

**MCPS**

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

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

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

**EXPOSURE IN BOWSER-MORNER RADON CHAMBER**

CLIENT KCI Technologies Inc. Job Number 173224

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

Date Start: 12/18/15 Date Stop: 12/21/15 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0929 Time Stop: 0929 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: 7705132, 7706208, Device No.'s: \_\_\_\_\_

7706211, 7706366, \_\_\_\_\_

7706380, 7706381 \_\_\_\_\_

F3 Left

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

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

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

\_\_\_\_\_

\_\_\_\_\_

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

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

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

\_\_\_\_\_

\_\_\_\_\_

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





## Chain of Custody

Project Name: MCPS Radon Phase III

Name of Schools:

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

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

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