



**MCPS RADON TESTING – EXECUTIVE SUMMARY**

Site Name	John F. Kennedy High School
Date of Test Report	3/2/2023
Round of Testing	<del>Initial</del> <del>Follow-up</del> Post Remediation <del>2 Year Testing</del> 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	113
# Rooms Re-tested	3
# Rooms $\geq$ 4.0 pCi/L	1
Lowest Value	<0.3 pCi/L
Highest Value	4.7 pCi/L

Project Status:

1. Initial testing completed;
2. Missing or compromised samples need re-test.
3. Retesting Completed 2/14/23 – 2/17/23.
4. Mitigate Room 190.



March 3, 2023

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

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

Location: John F. Kennedy High School  
1901 Randolph Road  
Silver Spring, MD 20902

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 John F. Kennedy High School, located at 1901 Randolph Road, Silver Spring, MD 20902 (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 initially on January 23, 2023 and deployed one hundred thirty-one (131) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

KCI returned to the site on January 26, 2023 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Accustar Labs - MA. for analysis by gamma-ray spectroscopy. Accustar Labs - MA is a NRSB certified analytical laboratory for radon analysis (certification #ARL0017) located at 2 Saber Way, Ward Hill, MA 01835.

KCI re-visited the site on February 14, 2023 to deploy eight (8) activated charcoal (AC) radon test kits for testing of missed rooms or compromised test kits during initial testing.

KCI returned to the site on February 17, 2023 to retrieve the radon re-sampling test kits. KCI shipped all radon tests via overnight delivery to Accustar Labs – MA for analysis by gamma-ray spectroscopy. Accustar Labs – MA is a NRSB certified analytical laboratory for radon analysis (certification #ARL0017) located at 2 Saber Way, Ward Hill, MA 01835.

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.

### **Evaluation of Testing Conditions:**

These tests represent:

- Follow up to initial testing.

These tests were conducted to:

- Evaluate radon concentration levels at the facility.

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate temperatures ranged from the 31°F to 52°F. Maximum sustained winds ranged from 5-25 miles per hour. Average humidity was around 60% with .32 inches of precipitation (rain) was recorded during testing period.

During the re-testing period, weather records indicate low temperatures were in the mid-20s°F and high temperatures ranged to the 70s°F. Maximum sustained winds ranged from 0-33 miles per hour. Average humidity was around 62% with 1.01 inches of precipitation (rain) was recorded during testing period.

**Results:**

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

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 pCi/L	190	3.4
	190	4.7
<4.0 pCi/L	See Attachment B	

The results of the radon re-testing analysis indicated the following:

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

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

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

Sincerely,



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

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

# ATTACHMENT A

## Floor Plan With Test Locations

# ATTACHMENT B

## Radon Test Summary Spreadsheet

**Table Notes:**

AC- Activated Charcoal

ACI- Air Check, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

OC- Quality Control

Table 1- Radon Testing Results		
John F. Kennedy HS		
Test Period: 01/23/2023 - 01/26/2023		
Kit Number	Room / Area	Result
11634520	100	0.9
11634590	101	0.6
11634586	103	1.3
11634209	105	1.4
11634214	105	1.1
11634548	106	2.0
11634577	107	2.2
11634598	109	2.3
11634542	110	0.8
11634215	111	0.8
11634543	112	< 0.3
11634206	113	< 0.3
11634541	114	0.9
11634538	116	< 0.3
11634540	118	0.7
11634203	119	< 0.3
11634212	119	0.7
11634213	119	0.9
11634539	120	< 0.3
11634202	121	0.9
11634535	122	< 0.3
11634537	122	< 0.3
11634549	122	< 0.3
11634201	123	0.8
11634562	124	< 0.3
11634229	125	1.2
11634561	126	0.6
11634560	129	0.9
11634224	131	0.6
11634558	132	0.8
11634228	133	1.3
11634557	134	1.0
11634556	136	< 0.3
11634554	138	1.3
11634555	138	1.3
11634223	139	0.7
11634227	139	0.9
11634222	141	< 0.3
11634220	143	< 0.3
11634553	144	< 0.3
11634219	145	< 0.3
11634225	147	0.6



Table 1- Radon Testing Results		
John F. Kennedy HS		
Test Period: 01/23/2023 - 01/26/2023		
Kit Number	Room / Area	Result
11634218	149	1.0
11634591	157	1.5
11634592	159	0.8
11634594	161	< 0.3
11634595	161	< 0.3
11634596	161	0.6
11634585	165	0.7
11634583	167	0.5
11634564	179	< 0.3
11634565	179	< 0.3
11634571	182	1.9
11634568	184	1.7
11634566	188	2.8
11634567	190	3.4
11634570	190	< 0.3
11634572	190	4.7
11634238	216	< 0.3
11634231	218	< 0.3
11634233	220	1.1
11634239	241	0.6
11634232	243	N/A
11634217	248	0.9
11634240	250	< 0.3
11634235	262	< 0.3
11634234	264	< 0.3
11634241	3332	< 0.3
11634519	100A	1.0
11634514	100B	0.7
11634513	100E	1.1
11634512	100F	1.3
11634511	100I	1.0
11634515	100K	0.8
11634510	100L	1.2
11634518	100M	1.0
11634509	100N	2.1
11634517	100N	2.0
11634533	100Q	1.3
11634532	100R	0.6
11634589	101A	0.7
11634588	101C	1.4
11634587	101D	0.6
11634522	104A	1.4

Table 1- Radon Testing Results		
John F. Kennedy HS		
Test Period: 01/23/2023 - 01/26/2023		
Kit Number	Room / Area	Result
11634523	104B	0.9
11634521	104C	1.0
11634524	104D	0.9
11634525	104G	1.1
11634526	104G	< 0.3
11634527	104G	1.2
11634528	104H	0.8
11634529	104J	1.1
11634530	104K	1.2
11634216	108A	1.1
11634545	108A	0.9
11634546	108A	1.1
11634544	108B	0.6
11634547	108C	0.8
11634534	111A	1.2
11634207	111D	1.1
11634205	111F	< 0.3
11634208	111G	< 0.3
11634508	112A	2.8
11634516	112B	1.0
11634211	121C	0.6
11634536	122B	< 0.3
11634531	122C1	2.8
11634559	129A	< 0.3
11634226	139B	< 0.3
11634221	147E	1.4
11634204	149A	0.8
11634593	161A	0.5
11634582	167B	< 0.3
11634584	167B	< 0.3
11634581	167C	N/A
11634580	167F	< 0.3
11634579	167G	0.5
11634578	167H	0.5
11634576	167I	0.7
11634575	167J	< 0.3
11634574	176A	0.7
11634597	AUDITORIUM	1.1
11634600	AUDITORIUM	0.7
11634551	CAFE	< 0.3
11634552	CAFE	< 0.3
11634573	GIRLS LOCKER ROOM	2.7

Table 1- Radon Testing Results		
John F. Kennedy HS		
Test Period: 01/23/2023 - 01/26/2023		
Kit Number	Room / Area	Result
11634550	MAIN GYM	1.7
11634563	MAIN GYM	1.6
11634569	MEN'S LOCKER ROOM	N/A

Table 2- Radon Testing Results			
John F. Kennedy HS			
Test Period: 01/23/23 - 01/26/23			
Kit Number	QC Type	Room / Area	Result
11634209	D	105	1.4
11634203	FB	119	< 0.3
11634212	D	119	0.7
11634535	FB	122	< 0.3
11634549	D	122	< 0.3
11634554	D	138	1.3
11634223	D	139	0.7
11634594	D	161	< 0.3
11634595	FB	161	< 0.3
11634570	FB	190	< 0.3
11634572	D	190	4.7
11634236	FB	241	< 0.3
11634237	D	241	< 0.3
11634509	D	100n	2.1
11634525	D	104g	1.1
11634526	FB	104g	< 0.3
11634545	D	108a	0.9
11634584	D	167b	< 0.3
11633990	OB	OFFICE BLANK	< 0.3
11633992	TB	TRAVEL BLANK	< 0.3

Summary of Missed Locations		
John F. Kennedy HS		
Test Period: 01/23/23 - 01/26/23		
Kit Number	Room/Area	Result
	N/A	

Summary of Missing, Compromised and $\geq$ 4 piC/L Tests		
John F. Kennedy HS		
Test Period: 01/23/23 - 01/26/23		
Kit Number	Room/Area	Result
11634567	190	3.4
11634572	190	4.7
11634232	243	Missing
11634581	167C	Missing
11634569	MEN'S LOCKER ROOM	Missing

Table Note:  
\* Missing or Compromised Sample

Table 1- Radon Testing Results		
John F. Kennedy HS RT		
Test Period: 02/14/2023 - 02/17/2023		
Kit Number	Room / Area	Result
11634957	243	< 0.3
11634958	167C	< 0.3
11634976	167C	0.5
11634979	167C	< 0.3
11634980	BOYS LR	0.9

Table 2- Radon Testing Results			
John F.Kennedy HS RT			
Test Period: 02/14/23 - 02/17/23			
Kit Number	QC Type	Room / Area	Result
11634976	D	167c	0.5
11634979	FB	167c	< 0.3
11634060	OB	OFFICE BLANK	< 0.3
11634067	TB	TRAVEL BALNK	< 0.3





# ATTACHMENT C

## Laboratory Analytical Results

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11634520	100	2023-01-23 @ 9:00 am	2023-01-26 @ 11:00 am	0.9 ± 0.4	2023-01-30
11634519	100A	2023-01-23 @ 9:00 am	2023-01-26 @ 11:00 am	1.0 ± 0.3	2023-01-30
11634514	100B	2023-01-23 @ 9:00 am	2023-01-26 @ 11:00 am	0.7 ± 0.3	2023-01-30
11634513	100E	2023-01-23 @ 9:00 am	2023-01-26 @ 11:00 am	1.1 ± 0.4	2023-01-30
11634512	100F	2023-01-23 @ 9:00 am	2023-01-26 @ 11:00 am	1.3 ± 0.4	2023-01-30
11634511	100I	2023-01-23 @ 9:00 am	2023-01-26 @ 11:00 am	1.0 ± 0.4	2023-01-30
11634515	100K	2023-01-23 @ 9:00 am	2023-01-26 @ 11:00 am	0.8 ± 0.3	2023-01-30
11634510	100L	2023-01-23 @ 9:00 am	2023-01-26 @ 11:00 am	1.2 ± 0.4	2023-01-30
11634518	100M	2023-01-23 @ 9:00 am	2023-01-26 @ 11:00 am	1.0 ± 0.4	2023-01-30
11634517	100N	2023-01-23 @ 9:00 am	2023-01-26 @ 11:00 am	2.0 ± 0.4	2023-01-30
11634509	100N	2023-01-23 @ 9:00 am	2023-01-26 @ 11:00 am	2.1 ± 0.4	2023-01-30
11634533	100Q	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	1.3 ± 0.4	2023-01-30
11634532	100R	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	0.6 ± 0.3	2023-01-30
11634590	101	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	0.6 ± 0.4	2023-01-30
11634589	101A	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	0.7 ± 0.4	2023-01-30
11634588	101C	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	1.4 ± 0.4	2023-01-30
11634587	101D	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	0.6 ± 0.3	2023-01-30
11634586	103	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	1.3 ± 0.4	2023-01-30
11634522	104A	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	1.4 ± 0.4	2023-01-30
11634523	104B	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	0.9 ± 0.3	2023-01-30
11634521	104C	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	1.0 ± 0.4	2023-01-30
11634524	104D	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	0.9 ± 0.3	2023-01-30
11634527	104G	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	1.2 ± 0.4	2023-01-30
11634526	104G	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634525	104G	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	1.1 ± 0.3	2023-01-30
11634528	104H	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	0.8 ± 0.4	2023-01-30
11634529	104J	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	1.1 ± 0.4	2023-01-30
11634530	104K	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	1.2 ± 0.4	2023-01-30
11634209	105	2023-01-23 @ 1:00 pm	2023-01-26 @ 12:00 pm	1.4 ± 0.3	2023-01-30
11634214	105	2023-01-23 @ 1:00 pm	2023-01-26 @ 12:00 pm	1.1 ± 0.4	2023-01-30
11634548	106	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	2.0 ± 0.4	2023-01-30
11634577	107	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	2.2 ± 0.4	2023-01-30
11634216	108A	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	1.1 ± 0.3	2023-01-30
11634545	108A	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	0.9 ± 0.3	2023-01-30
11634546	108A	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	1.1 ± 0.3	2023-01-30
11634544	108B	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	0.6 ± 0.3	2023-01-30
11634547	108C	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	0.8 ± 0.4	2023-01-30

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11634598	109	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	2.3 ± 0.4	2023-01-30
11634542	110	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	0.8 ± 0.3	2023-01-30
11634215	111	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	0.8 ± 0.3	2023-01-30
11634534	111A	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	1.2 ± 0.4	2023-01-30
11634207	111D	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	1.1 ± 0.3	2023-01-30
11634205	111F	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634208	111G	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634543	112	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634508	112A	2023-01-23 @ 9:00 am	2023-01-26 @ 11:00 am	2.8 ± 0.4	2023-01-30
11634516	112B	2023-01-23 @ 9:00 am	2023-01-26 @ 11:00 am	1.0 ± 0.3	2023-01-30
11634206	113	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634541	114	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	0.9 ± 0.4	2023-01-30
11634538	116	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634540	118	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	0.7 ± 0.3	2023-01-30
11634212	119	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	0.7 ± 0.3	2023-01-30
11634203	119	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634213	119	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	0.9 ± 0.3	2023-01-30
11634539	120	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634202	121	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	0.9 ± 0.3	2023-01-30
11634211	121C	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	0.6 ± 0.3	2023-01-30
11634549	122	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634537	122	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634535	122	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634536	122B	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634531	122C1	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	2.8 ± 0.4	2023-01-30
11634201	123	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	0.8 ± 0.3	2023-01-30
11634562	124	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634229	125	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	1.2 ± 0.4	2023-01-30
11634561	126	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	0.6 ± 0.3	2023-01-30
11634560	129	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	0.9 ± 0.3	2023-01-30
11634559	129A	2023-01-23 @ 10:00 am	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634224	131	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	0.6 ± 0.3	2023-01-30
11634558	132	2023-01-23 @ 11:00 am	2023-01-26 @ 11:00 am	0.8 ± 0.3	2023-01-30
11634228	133	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	1.3 ± 0.4	2023-01-30
11634557	134	2023-01-23 @ 11:00 am	2023-01-26 @ 11:00 am	1.0 ± 0.4	2023-01-30
11634556	136	2023-01-23 @ 11:00 am	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634555	138	2023-01-23 @ 11:00 am	2023-01-26 @ 11:00 am	1.3 ± 0.4	2023-01-30

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11634554	138	2023-01-23 @ 11:00 am	2023-01-26 @ 11:00 am	1.3 ± 0.4	2023-01-30
11634227	139	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	0.9 ± 0.4	2023-01-30
11634223	139	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	0.7 ± 0.3	2023-01-30
11634226	139B	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634222	141	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634220	143	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634553	144	2023-01-23 @ 11:00 am	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634219	145	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634225	147	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	0.6 ± 0.4	2023-01-30
11634221	147E	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	1.4 ± 0.4	2023-01-30
11634218	149	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	1.0 ± 0.4	2023-01-30
11634204	149A	2023-01-23 @ 1:00 pm	2023-01-26 @ 11:00 am	0.8 ± 0.3	2023-01-30
11634591	157	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	1.5 ± 0.4	2023-01-30
11634592	159	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	0.8 ± 0.4	2023-01-30
11634596	161	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	0.6 ± 0.3	2023-01-30
11634594	161	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634595	161	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634593	161A	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	0.5 ± 0.3	2023-01-30
11634585	165	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	0.7 ± 0.3	2023-01-30
11634583	167	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	0.5 ± 0.3	2023-01-30
11634584	167B	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634582	167B	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634580	167F	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634579	167G	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	0.5 ± 0.3	2023-01-30
11634578	167H	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	0.5 ± 0.4	2023-01-30
11634576	167I	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	0.7 ± 0.3	2023-01-30
11634575	167J	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634574	176A	2023-01-23 @ 11:00 am	2023-01-26 @ 11:00 am	0.7 ± 0.4	2023-01-30
11634565	179	2023-01-23 @ 11:00 am	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634564	179	2023-01-23 @ 11:00 am	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634571	182	2023-01-23 @ 11:00 am	2023-01-26 @ 11:00 am	1.9 ± 0.4	2023-01-30
11634568	184	2023-01-23 @ 11:00 am	2023-01-26 @ 11:00 am	1.7 ± 0.4	2023-01-30
11634566	188	2023-01-23 @ 11:00 am	2023-01-26 @ 11:00 am	2.8 ± 0.4	2023-01-30
11634567	190	2023-01-23 @ 11:00 am	2023-01-26 @ 11:00 am	3.4 ± 0.4	2023-01-30
11634570	190	2023-01-23 @ 11:00 am	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634572	190	2023-01-23 @ 11:00 am	2023-01-26 @ 11:00 am	4.7 ± 0.5	2023-01-30
11634238	216	2023-01-23 @ 2:00 pm	2023-01-26 @ 11:00 am	< 0.3	2023-01-30

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11634231	218	2023-01-23 @ 2:00 pm	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634233	220	2023-01-23 @ 2:00 pm	2023-01-26 @ 11:00 am	1.1 ± 0.3	2023-01-30
11634239	241	2023-01-23 @ 2:00 pm	2023-01-26 @ 11:00 am	0.6 ± 0.3	2023-01-30
11634217	248	2023-01-23 @ 1:00 pm	2023-01-26 @ 12:00 pm	0.9 ± 0.3	2023-01-30
11634240	250	2023-01-23 @ 2:00 pm	2023-01-26 @ 12:00 pm	< 0.3	2023-01-30
11634235	262	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634234	264	2023-01-23 @ 2:00 pm	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634241	3332	2023-01-23 @ 2:00 pm	2023-01-26 @ 12:00 pm	< 0.3	2023-01-30
11634600	AUDITORIUM	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	0.7 ± 0.4	2023-01-30
11634597	AUDITORIUM	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	1.1 ± 0.4	2023-01-30
11634551	CAFE	2023-01-23 @ 11:00 am	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634552	CAFE	2023-01-23 @ 11:00 am	2023-01-26 @ 11:00 am	< 0.3	2023-01-30
11634573	GIRLS LOCKER ROOM	2023-01-23 @ 11:00 am	2023-01-26 @ 11:00 am	2.7 ± 0.4	2023-01-30
11634563	MAIN GYM	2023-01-23 @ 11:00 am	2023-01-26 @ 11:00 am	1.6 ± 0.4	2023-01-30
11634550	MAIN GYM	2023-01-23 @ 12:00 pm	2023-01-26 @ 11:00 am	1.7 ± 0.4	2023-01-30

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January 30, 2023

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

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Radon test result report for:  
**JOHN F. KENNEDY 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>
11634236	241	2023-01-23 @ 9:00 am	2023-01-26 @ 12:00 pm	< 0.3	2023-01-30
11634237	241	2023-01-23 @ 9:00 am	2023-01-26 @ 12:00 pm	< 0.3	2023-01-30

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

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February 20, 2023

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

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Radon test result report for:

**JFK HS**

**1**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11634958	167C	2023-02-14 @ 9:00 am	2023-02-17 @ 10:00 am	< 0.3	2023-02-20
11634976	167C	2023-02-14 @ 9:00 am	2023-02-17 @ 10:00 am	0.5 ± 0.3	2023-02-20
11634979	167C	2023-02-14 @ 9:00 am	2023-02-17 @ 10:00 am	< 0.3	2023-02-20
11634957	243	2023-02-14 @ 9:00 am	2023-02-17 @ 10:00 am	< 0.3	2023-02-20
11634980	BOYS LR	2023-02-14 @ 9:00 am	2023-02-17 @ 10:00 am	0.9 ± 0.3	2023-02-20

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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 208802

NOMINAL Conditions: Radon Conc 24.4 pCi/L Rel. Hum 48.6 % Temp. 79.3 F

Date Start: 1/27/23 Date Stop: 1/30/23 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0816 Time Stop: 0816 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (5) CHAR BAGS Device No.'s: \_\_\_\_\_

11633682, 11633687, 11633688 \_\_\_\_\_

11633695, 11633696 \_\_\_\_\_

P3 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**



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February 3, 2023

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

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Radon test result report for:

**OFFICE**

**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>
11633696	SK10	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	24.2 ± 1.9	2023-02-03
11633682	SK6	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	26.9 ± 2.1	2023-02-03
11633687	SK7	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	23.8 ± 1.9	2023-02-03
11633688	SK8	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	25.9 ± 2.1	2023-02-03
11633695	SK9	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	27.0 ± 2.2	2023-02-03

---

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



### Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Week 2 Retesting January Schools

Name of Schools:

1. A. Mario Loiederman MS
2. Cannon Road ES
3. Forest Knolls ES
4. Glen Haven ES
5. Goshen ES
6. Highland View ES
7. John F. Kennedy HS
8. Lakelands Park MS
9. Montgomery Village MS
10. Poolesville HS
11. Springbrook HS

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	Date	Initials
Radon Test Kits Deployed	02/14/2023	BMU
Radon Test Kits Collected	02/17/2023	BMU
Radon Test Kits Shipped to Lab*	02/17/2023	BMU
Radon Test Kits Received by Lab*	02/20/2023	BMU

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



# Soil and Land Use Technology, Inc.

1818 New York NE, Suite 231 • Washington, DC 20002

(301) 595-3783  
www.SaLUTinc.com

## MCPS RADON TESTING - EXECUTIVE SUMMARY

Site Name	John Kennedy High School
Date of Report	12/24/2020
Round of Testing	Initial Follow-up <b>Post Remediation</b> 2 year testing 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	1
# Rooms $\geq 4.0$ pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.3 pCi/L

### Project Status

Current Project Status at this time: Testing Complete



# Soil and Land Use Technology, Inc.

---

(301) 595-3783  
1818 New York NE, Suite 231 • Washington, DC 20002

[www.SaLUTinc.com](http://www.SaLUTinc.com)

12/24/2020

Brian Croyle, PG, CHMM  
Environmental Specialist  
Environmental Services/Indoor Air Quality  
Montgomery County Public Schools  
Division of Sustainability and Compliance  
Gaithersburg, Maryland 20879

Re: Radon Testing Services

SaLUT Job #20-173

**Location: John Kennedy High School**  
1901 Randolph Road Wheaton, MD 20902

Dear Mr. Croyle:

Soil and Land Use Technology, Inc. (SaLUT) is pleased to submit the following report to Montgomery County Public Schools pursuant to completing a “Post Remediation radon test for the John Kennedy High School, located at 1901 Randolph Road Wheaton, MD 20902 (subject site).

## **SCOPE OF SERVICES**

SaLUT 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. SaLUT 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*. 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).

SaLUT visited the site on 12/1/2020 and deployed four (4) activated charcoal (AC) radon test kits. SaLUT deployed radon test kits in remediated 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, SaLUT included duplicate samples, field blanks, lab transit blanks, and office blanks in accordance with AARST recommendations. In addition, SaLUT submitted one (1) test kit 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.

SaLUT returned to the site on 12/4/2020 to retrieve the radon sampling test kits. SaLUT shipped all radon tests via overnight delivery to EMSL Analytical, Inc. for analysis by gamma-ray spectroscopy. EMSL Analytical, Inc. is a National Radon Safety Board (NRSB) radon measurement provider and is a certified analytical laboratory for radon analysis (certification #109000 AL) located at 200 Route 130 North, Cinnaminson, NJ 08077.

### **EVALUATION OF TESTING CONDITIONS**

These tests represent:

- Post Remediation 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, SaLUT concludes that this test was conducted during ideal testing conditions.

SaLUT 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.

SaLUT also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the mid-30s and high temperatures were in the mid-50s. Maximum sustained winds ranged from 10-15 miles per hour. Average humidity was around 57%. 0.0 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	N/A	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 301-595-3783.

Sincerely,

Mark McGrath

Soil and Land Use Technology, Inc. (SaLUT)  
1818 New York Avenue, NE, Suite 231  
Washington, DC 20002  
202-446-7211 Mobile  
301-595-3783  
202-379-9504 fax

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

D- Duplicate

FB- Field Blank

OB- Office Blank

PM- Project Manager

QC- Quality Control

Table 1- Radon Testing Results		
John Kennedy High School		
Test Period: 12/1/2020-12/4/2020		
Kit Number	Room / Area	Result
440248	Auditorium	< 0.3
440264	Auditorium	1.3
440213	Auditorium	0.8
440284	Auditorium	0.8

Table 2- Radon Testing Results			
John Kennedy High School			
Test Period: 12/1/2020-12/4/2020			
Kit Number	QC Type	Room / Area	Result
440248	FB	Auditorium	<0.3
440264	D	Auditorium	0.8
437292	Transit Blank	N/A	-0.2



# ATTACHMENT C

## Laboratory Analytical Results

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077  
 Phone/Fax: (800) 220-3675 / (856) 786-0327  
<http://www.EMSL.com> [cinnaminsonradonlab@emsl.com](mailto:cinnaminsonradonlab@emsl.com)

EMSL Order: 382013020  
 CustomerID: SALU50  
 CustomerPO:  
 ProjectID:

Attn: **Indika Jayatilake**  
**SaLUT**  
**1818 New York Avenue, NE**  
**Suite 231**  
**Washington, DC 20002**

Phone: (301) 595-3783  
 Fax: (301) 595-3787  
 Received: 12/7/2020 08:10 AM  
 Analysis Date: 12/7/2020  
 Collected: 12/1/2020

Project: **John Kennedy HS / 1901 Randolph Road**

Test Site: **John Kennedy HS**  
**1901 Randolph Road**  
**Wheaton, MD 20902**

**Test Report: Radon in Air Test Results****Samples for EMSL Kit 252515**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
440248 382013020-0001	Auditorium	-0.3	12/1/2020 11:45:00 AM	12/4/2020 11:53:00 AM	35	70	Blank

**Sample Notes:**

440264 382013020-0002	Auditorium	1.3	12/1/2020 11:45:00 AM	12/4/2020 11:53:00 AM	35	69	Customer
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**Sample Notes:****Samples for EMSL Kit 252258**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
440213 382013020-0003	Auditorium	0.8	12/1/2020 11:45:00 AM	12/4/2020 11:53:00 AM	35	69	Duplicate

**Sample Notes:**

440284 382013020-0004	Auditorium	0.8	12/1/2020 11:45:00 AM	12/4/2020 11:53:00 AM	35	69	Customer
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**Sample Notes:**

**Duplicate RPD = 0%**

The radon test was performed using a liquid scintillation radon detector/s and counted on a liquid scintillation counter using approved EPA testing protocols for Radon in Air testing. The EPA recommends fixing your home if the average of two short-term tests taken in the lowest lived-in level of the home show radon levels that are equal to or greater than 4.0pCi/L. The EPA recommends retesting your home every two years.

Please contact EMSL Analytical, Inc. or your State Health Department for further information. All procedures used for generating this report are in complete accordance with the current EPA protocols for the analysis of Radon in Air.

**Report Note**



**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077  
Phone/Fax: (800) 220-3675 / (856) 786-0327  
<http://www.EMSL.com> [cinnaminsonradonlab@emsl.com](mailto:cinnaminsonradonlab@emsl.com)

EMSL Order: 382013020  
CustomerID: SALU50  
CustomerPO:  
ProjectID:

Attn: **Indika Jayatilake**  
**SaLUT**  
**1818 New York Avenue, NE**  
**Suite 231**  
**Washington, DC 20002**

Phone: (301) 595-3783  
Fax: (301) 595-3787  
Received: 12/7/2020 08:10 AM  
Analysis Date: 12/7/2020  
Collected: 12/1/2020

Project: **John Kennedy HS / 1901 Randolph Road**

Test Site: **John Kennedy HS**  
**1901 Randolph Road**  
**Wheaton, MD 20902**

**Test Report: Radon in Air Test Results**

Analyst(s)

Racquel Hafiz (4)

Dominic Gehret, Radiochemistry Laboratory Manager, NJ Radon  
Measurement Specialist MES 13910  
or other approved signatory

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages, including, but not limited to, damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages, arising out of or in connection with EMSL's services thereunder or the delivery, use, reliance upon or interpretation of test results by client or any third party. We accept no legal responsibility for the purposes for which the client uses the test results. In no event shall EMSL be liable to a client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereunder. The test results meets all NELAC requirements unless otherwise specified.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ FL RB2034/R2687,IL RNL2008202,IN RTL00935,IA RNLAB10005,KS KS-LB-0005/KS-MS-0482,ME SPC202,MN RL-0005,NE 474/RMB-1083,NJ 03036/MEB92525/MES13910,NY 10872,OH RL39,OK D9952,PA 2573/3393/68-00367,RI RMB-108/RI00179,WV RL000220,NRSB-ARL6006,NRPP

Initial report from 12/09/2020 14:54:10

Please visit [www.radontestinglab.com](http://www.radontestinglab.com)



EMSL ANALYTICAL, INC.  
LABORATORY PRODUCTS TRAINING

# Radon Testing Chain of Custody

EMSL Order Number (Lab Use Only):

EMSL  
CINNAMINSON, NJ 382013020

EMSL Analytical, Inc.  
200 Route 130 North  
NJ 08077  
Cinnaminson, NJ 08077  
PHONE: 1-800-220-3675  
FAX: (856) 786-5974

Company: SaLUT 2020 DEC - 7 A 8:10

Street: 1818 New York Avenue, NE Suite 231

City: Washington State/Province: DC Zip/Postal Code: 20002 Country: US

Report To (Name): Indika Jayatilake Fax #: 301-595-3787

Telephone #: 301-595-3783 Email Address: [ijayatilake@salutinc.com](mailto:ijayatilake@salutinc.com)

Project Name/Number: MCPS Johan Kennedy HS

Please Provide Results:  Fax  Email  Mail  Purchase Order: U.S. State Samples Taken: MD

**Project Property Information**

Project Name:

Project Address: 1901 Randolph Rd

City: Wheaton State: MD Zip Code: 20902

County: Municipality:

Technician Name: Jude Technician Cert #: Technician Signature: [Signature]

**New Jersey Testing Information**

NJDEP Laboratory Certification # 03036 NJDEP Radon Business Certification # MEB92525

1.) Is the radon test being conducted for the purpose of:  Real Estate Transaction  Homeowner Testing  Other

2.) Test Conditions observed?  Closed House  Open House

3.) What is the building type?  Residential  Non-Residential  Daycare  School

4.) What is the building foundation type?  Basement  Crawspace  Slab on Grade  Other

5.) For School Testing, please enter: School Code Room Name/Number

Box Number	Device Number	Location	Exposure Period Beginning Date and Time	Exposure Period Ending Date and Time	Temperature °F	Humidity, %
252515	440248 Blank	Auditorium	12-1-20 11.45	12-4-20 11.53	35.2	68.9
252515	440269 Sample	do	12-1-20 11.45	12-4-20 11.53	35.2	68.9
<del>252515</del>						
252258	440213 Duplicate	Auditorium	12-1-20 11.45	12-4-20 11.53	35.2	68.9
252258	440284 Sample	do	12-1-20 11.45	12-4-20 11.53	35.2	68.9

Client Sample # (s): - Total # of Samples:

Relinquished (Client): Date: Time:

Received (Lab): R. Haff Date: 12.7.20 Time:

Comments/Special Instructions:





EMSL Analytical, Inc.  
200 Route 130 North  
Cinnaminson NJ 08077  
800-220-3675  
radlab@emsl.com

### RADON IN AIR CHAIN OF CUSTODY

Turnaround:  Same Day  Next Day  Two Day

#### INDOOR CANISTER COLLECTION CONDITIONS

TEMPERATURE 68.0 °F HUMIDITY 34.7 %

START DATE 12/01/20 TIME 11:45  AM  PM

STOP DATE     /     /     TIME    :   :     AM  PM

LOCATION  BASEMENT  1st FLOOR  2nd FLOOR

BEDROOM  LIVING ROOM  OTHER    

1<sup>ST</sup> CANISTER NUMBER 252515

SAMPLE TYPE  CUSTOMER  DUPLICATE  BLANK

2<sup>ND</sup> CANISTER NUMBER 250258

SAMPLE TYPE  CUSTOMER  DUPLICATE  BLANK

#### PROJECT BACKGROUND QUESTIONS

1. IS THIS A REAL ESTATE TRANSACTION?  YES  NO

2. IS THIS A POST MITIGATION TEST?  YES  NO

3. IS THIS A RETEST?  YES  NO

4. BUILDING CONDITIONS:  OPEN  CLOSED

5. BUILDING TYPE:  RESIDENTIAL  NON-RESIDENTIAL

SINGLE FAMILY  MULTI-UNIT

COMMERCIAL  SCHOOL  DAYCARE

OTHER    

6. SCHOOL CODE      N/A

7. ROOM NUMBER      N/A

ROOM LOCATION      N/A

8. WHAT IS THE BUILDING FOUNDATION TYPE    

BASEMENT  CRAWLSPACE  SLAB ON GRADE

OTHER      N/A

NOTES: Kennedy HS Auditorium

COC Revision 3.0; 01/03/2020

**SAMPLES RELEASED TO THE LABORATORY**

NAME    

SIGNATURE    

DATE     /     /     TIME    :   :     AM  PM

**SAMPLES RECEIVED BY THE LABORATORY**

NAME    

SIGNATURE    

DATE     /     /     TIME    :   :     AM  PM

EMSL KIT ID NUMBER    

#### SEND REPORT TO

EMSL CUSTOMER ID    

NAME    

ADDRESS    

CITY    

STATE     ZIP CODE    

PHONE    

EMAIL    

#### SEND COPY OF REPORT TO

EMAIL    

EMAIL    

#### PROPERTY TESTED SAME AS ABOVE

NAME    

ADDRESS    

CITY    

MUNICIPALITY      N/A

COUNTY    

STATE     ZIP CODE    

#### TECHNICIAN WHO DROPPED-OFF CANISTER(S)

NAME    

CERTIFICATION #      N/A

SIGNATURE    

#### TECHNICIAN WHO PICKED-UP CANISTER(S) SAME

NAME    

CERTIFICATION #      N/A

SIGNATURE    

NRPP ID 109000 ♦ AL NRSB-ARL-6006 ♦ NJDEP MEB92525  
EMSL MAINTAINS MULTIPLE NATIONAL AND STATE  
CERTIFICATIONS FOR RADON ANALYSIS. PLEASE SEE OUR  
WEBSITE FOR THE MOST UP TO DATE LIST:  
[WWW.EMSL.COM](http://WWW.EMSL.COM)

Expiration Date: 12/31/2022



**MCPS RADON TESTING - EXECUTIVE SUMMARY**

Site Name	Kennedy 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	3
# Rooms $\geq$ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.4 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 #12146341.126

**Location: Kennedy High School**

1901 Randolph Road  
Silver Spring, Maryland 20902

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 Kennedy High School, located at 1901 Randolph Road in Silver Spring, Maryland 20902 (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 2/11/2020 and deployed five (5) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

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

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

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

KCI returned to the site on 2/14/2020 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 were in the mid-20s to the upper-40s; and high temperatures ranged from the lower-40s to the upper-50s. Maximum sustained winds ranged from 14-24 miles per hour. Average humidity was approximately 74%. A total of 1.32 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



---

February 25, 2020

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

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Radon test result report for:  
**KENNEDY HS RT**  
**815**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
9348555	118	2020-02-11 @ 9:00 am	2020-02-14 @ 10:00 am	< 0.3	2020-02-18
9348552	149A	2020-02-11 @ 9:00 am	2020-02-14 @ 10:00 am	0.9 ± 0.4	2020-02-18
9348559	163 - AUD	2020-02-11 @ 9:00 am	2020-02-14 @ 10:00 am	1.1 ± 0.4	2020-02-18
9348560	163 - AUD	2020-02-11 @ 9:00 am	2020-02-14 @ 10:00 am	1.4 ± 0.4	2020-02-18

---

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

Table 2- Radon Testing Results			
Kennedy High School			
Test Period: 02/11/20-02/14/20			
Kit Number	QC Type	Room / Area	Result
9348522	TRANSIT BLANK	NA	0.7
9341735	TRANSIT BLANK	NA	<0.3

# ATTACHMENT C

## Laboratory Analytical Results

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February 25, 2020

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

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Radon test result report for:  
**KENNEDY HS RT**  
**815**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
9348555	118	2020-02-11 @ 9:00 am	2020-02-14 @ 10:00 am	< 0.3	2020-02-18
9348552	149A	2020-02-11 @ 9:00 am	2020-02-14 @ 10:00 am	0.9 ± 0.4	2020-02-18
9348559	163 - AUD	2020-02-11 @ 9:00 am	2020-02-14 @ 10:00 am	1.1 ± 0.4	2020-02-18
9348560	163 - AUD	2020-02-11 @ 9:00 am	2020-02-14 @ 10:00 am	1.4 ± 0.4	2020-02-18

---

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies, Inc. Job Number 194523

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

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

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

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

9341725 thru 9341733

52 ceph

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

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

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

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

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

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

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

Radon test result report for:

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

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



### Radon Test Kit Chain of Custody

Project Name: MCPS Radon 2019 Week 2

Name of Schools:

- |                       |                   |
|-----------------------|-------------------|
| 1. Argyle M.S.        | 6. Fallsmead E.S. |
| 2. Banneker M.S.      | 7. Farquhar M.S.  |
| 3. Bel Pre E.S.       | 8. Kennedy H.S.   |
| 4. Blake H.S.         | 9. Magruder H.S.  |
| 5. Briggs Chaney M.S. | 10. Wheaton H.S.  |

---

	Date	Initials
Radon Test Kits Deployed	2/11/20	JM
Radon Test Kits Collected	2/14/20	JM
Radon Test Kits Shipped to Lab*	2/14/20	JM
Radon Test Kits Received by Lab*	2/17/20	JM

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



**MCPS RADON TESTING - EXECUTIVE SUMMARY**

Site Name	John F. Kennedy High School
Date of Report	2/3/2020
Round of Testing	Initial Follow-up <b>Post Remediation</b> <b>2 year testing</b> 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	114
# Rooms $\geq$ 4.0 pCi/L	1
Lowest Value	<0.3 pCi/L
Highest Value	6.8 pCi/L

**Project Status**

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





2/3/2020

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: John F. Kennedy High School**

1901 Randolph Rd  
Wheaton, Maryland 20902

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 John F. Kennedy High School, located at 1901 Randolph Rd in Wheaton, Maryland 20902 (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 Provider (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 12/16/2019 and deployed one-hundred and thirty-seven (137) 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 12/19/2019 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 National Radon Safety Board (NRSB) radon measurement provider and is a 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:

- 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 lower-20s and high temperatures were in the lower-40s. Maximum sustained winds ranged from 12-26 miles per hour. Average humidity was around 67%. 0.54 inches of precipitation (rain and snow) 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	163	6.8
≤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		
Kennedy High School		
Test Period: 12/16/2019-12/19/2019		
Kit Number	Room / Area	Result
9339801	170	< 0.3
9339805	170	0.7
9339826	209	1.9
9339827	219A	0.7
9339828	234	0.5
9339829	215	0.9
9339830	215WR	1.5
9339831	219A	0.8
9339832	232	1.1
9339833	221	1
9339834	223	1.1
9339835	236	1
9339837	238	1.1
9339838	240	1
9339844	169	2.2
9339846	179	1
9339847	179	0.7
9339848	188	2.4
9339849	184	< 0.3
9339850	184	0.7
9339851	184	1.2
9339852	176A	1.6
9339853	186	< 0.3
9339854	182	1.4
9339855	180	2.1
9339856	168	< 0.3
9339857	164	0.9
9339858	170B	0.8
9339859	163	6.8
9339860	163	1.6
9339861	165	1.3
9339862	165B	1
9339863	165C	0.8
9339864	165C	0.7
9339865	167	0.9
9339866	169	1.5
9339867	169	1.3
9340401	136	0.7
9340402	138	1.4
9340403	151	< 0.3
9340404	145	1
9340405	144	0.8
9340406	153	0.5
9340407	143	< 0.3
9340408	152	< 0.3
9340409	156	0.5
9340410	160	< 0.3
9340411	162	0.9
9340412	161	0.8
9340413	149	1.2

9340414	147	1
9340415	159A	0.7
9340416	149E	1.2
9340417	159	1.4
9340418	155	1.1
9340419	101D	1.4
9340420	101D	1.4
9340421	101D	< 0.3
9340422	101C	2.1
9340423	101A	1.4
9340424	101	1.7
9340425	103	1.8
9340426	105	1.4
9340427	107	2.7
9340428	109	1.8
9340429	102	3.5
9340430	111F	1.8
9340431	111F	1.5
9340432	111	2.2
9340433	111B	1.4
9340434	113	1.3
9340435	106	2.8
9340436	104C	2
9340437	AP3	3.2
9340438	100Q	2.1
9340439	100R	1.8
9340440	104K	2.2
9340441	104J	1.9
9340442	104H	1.5
9340443	104G	2.3
9340444	104D	1.6
9340445	104B	< 0.3
9340446	104B	1.6
9340447	100A	1.1
9340448	100	1.5
9340449	104B	1.6
9340450	104A	2
9340451	104	1.6
9340452	100B	1.1
9340453	AP-100E	1.2
9340454	100K	1.5
9340455	100L	1.8
9340456	AP2	2.5
9340457	100F	1.3
9340458	100I	1.5
9340459	BSM	1.2
9340460	BSM	1.3
9340461	122B	0.5
9340462	114	1.8
9340463	121	1
9340464	121C	1.5
9340465	119	1
9340466	150	0.6
9340467	170	< 0.3
9340468	133	3.2



9340469	108B	1.6
9340470	108A	1.1
9340471	122	< 0.3
9340472	108C	1
9340473	122	< 0.3
9340474	120	0.7
9340476	112	0.8
9340477	110	1
9340478	121	1
9340479	129A	1
9340480	125A	2.1
9340481	134A	1.4
9340482	116	1.4
9340484	150	0.5
9340485	132	1.1
9340486	132B	1.7
9340487	131	1.1
9340488	126	1.2
9340489	139B	< 0.3
9340490	141	1
9340491	139	2.4
9340492	133	2.2
9340493	124	1.1
9340494	123	1.5
9340495	134	1.5
9340496	125	2.4
9340497	129	1.8
9340498	122	< 0.3
9340499	143	0.8
9340500	143	1.2
9339845	169	1.4
9341397	OFFICE BLANK	< 0.3
9340475	118	MISSING
9340483	149A	MISSING

Table 2- Radon Testing Results			
Kennedy High School			
Test Period: 12/16/2019-12/19/2019			
Kit Number	QC Type	Room / Area	Result
9340459	D	BSM	1.2
9340445	FB	104B	<0.3
9340446	D	104B	1.6
9340431	D	111F	1.5
9340421	FB	101D	<0.3
9340420	D	101D	1.4
9340408	D	152	<0.3
9340407	FB	143	<0.3
9340499	D	143	0.8
9340492	D	133	2.2
9340471	FB	122	<0.3
9340473	D	122	<0.3
9340478	D	121	1
9340467	FB	170	<0.3
9339805	D	170	0.7
9339863	D	165C	0.8
9339849	FB	184	<0.3
9339850	D	184	0.7
9339827	D	219A	0.7
9341377	TRANSIT BLANK	NA	0.5
9341379	TRANSIT BLANK	NA	< 0.3
9341380	TRANSIT BLANK	NA	< 0.3
9341398	TRANSIT BLANK	NA	< 0.3



# ATTACHMENT C

## Laboratory Analytical Results

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9340448	100	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.5 ± 0.4	2019-12-23
9340447	100A	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.1 ± 0.4	2019-12-23
9340452	100B	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.1 ± 0.4	2019-12-23
9340457	100F	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.3 ± 0.4	2019-12-23
9340458	100I	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.5 ± 0.4	2019-12-23
9340454	100K	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.5 ± 0.4	2019-12-23
9340455	100L	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.8 ± 0.4	2019-12-23
9340438	100Q	2019-12-16 @ 1:00 pm	2019-12-19 @ 8:00 am	2.1 ± 0.4	2019-12-23
9340439	100R	2019-12-16 @ 1:00 pm	2019-12-19 @ 8:00 am	1.8 ± 0.4	2019-12-23
9340424	101	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.7 ± 0.4	2019-12-23
9340423	101A	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.4 ± 0.4	2019-12-23
9340422	101C	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	2.1 ± 0.4	2019-12-23
9340421	101D	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	< 0.3	2019-12-23
9340419	101D	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.4 ± 0.5	2019-12-23
9340420	101D	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.4 ± 0.4	2019-12-23
9340429	102	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	3.5 ± 0.5	2019-12-23
9340425	103	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.8 ± 0.4	2019-12-23
9340451	104	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.6 ± 0.4	2019-12-23
9340450	104A	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	2.0 ± 0.5	2019-12-23
9340445	104B	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	< 0.3	2019-12-23
9340446	104B	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.6 ± 0.4	2019-12-23
9340449	104B	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.6 ± 0.4	2019-12-23
9340436	104C	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	2.0 ± 0.4	2019-12-23
9340444	104D	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.6 ± 0.4	2019-12-23
9340443	104G	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	2.3 ± 0.5	2019-12-23
9340442	104H	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.5 ± 0.4	2019-12-23
9340441	104J	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.9 ± 0.5	2019-12-23
9340440	104K	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	2.2 ± 0.5	2019-12-23
9340426	105	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.4 ± 0.4	2019-12-23
9340435	106	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	2.8 ± 0.5	2019-12-23
9340427	107	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	2.7 ± 0.4	2019-12-23
9340470	108A	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.1 ± 0.4	2019-12-23
9340469	108B	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.6 ± 0.4	2019-12-23
9340472	108C	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.0 ± 0.4	2019-12-23
9340428	109	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.8 ± 0.4	2019-12-23
9340477	110	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.0 ± 0.4	2019-12-23
9340432	111	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	2.2 ± 0.4	2019-12-23

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9340433	111B	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.4 ± 0.4	2019-12-23
9340430	111F	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.8 ± 0.4	2019-12-23
9340431	111F	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.5 ± 0.4	2019-12-23
9340476	112	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	0.8 ± 0.4	2019-12-23
9340434	113	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.3 ± 0.4	2019-12-23
9340462	114	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.8 ± 0.4	2019-12-23
9340482	116	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.4 ± 0.4	2019-12-23
9340465	119	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.0 ± 0.4	2019-12-23
9340474	120	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	0.7 ± 0.4	2019-12-23
9340478	121	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.0 ± 0.4	2019-12-23
9340463	121	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.0 ± 0.4	2019-12-23
9340464	121C	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.5 ± 0.4	2019-12-23
9340473	122	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	< 0.3	2019-12-23
9340471	122	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	< 0.3	2019-12-23
9340498	122	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	< 0.3	2019-12-23
9340461	122B	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	0.5 ± 0.4	2019-12-23
9340494	123	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.5 ± 0.4	2019-12-23
9340493	124	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.1 ± 0.4	2019-12-23
9340496	125	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	2.4 ± 0.4	2019-12-23
9340480	125A	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	2.1 ± 0.5	2019-12-23
9340488	126	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.2 ± 0.4	2019-12-23
9340497	129	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.8 ± 0.4	2019-12-23
9340479	129A	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.0 ± 0.4	2019-12-23
9340487	131	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.1 ± 0.4	2019-12-23
9340485	132	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.1 ± 0.4	2019-12-23
9340486	132B	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.7 ± 0.4	2019-12-23
9340492	133	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	2.2 ± 0.4	2019-12-23
9340468	133	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	3.2 ± 0.5	2019-12-23
9340495	134	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.5 ± 0.4	2019-12-23
9340481	134A	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.4 ± 0.4	2019-12-23
9340401	136	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	0.7 ± 0.4	2019-12-23
9340402	138	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.4 ± 0.4	2019-12-23
9340491	139	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	2.4 ± 0.4	2019-12-23
9340489	139B	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	< 0.3	2019-12-23
9340490	141	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.0 ± 0.4	2019-12-23
9340499	143	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	0.8 ± 0.4	2019-12-23
9340407	143	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	< 0.3	2019-12-23

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9340500	143	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.2 ± 0.4	2019-12-23
9340405	144	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	0.8 ± 0.4	2019-12-23
9340404	145	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.0 ± 0.4	2019-12-23
9340414	147	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.0 ± 0.4	2019-12-23
9340413	149	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.2 ± 0.4	2019-12-23
9340416	149E	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.2 ± 0.4	2019-12-23
9340484	150	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	0.5 ± 0.4	2019-12-23
9340466	150	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	0.6 ± 0.4	2019-12-23
9340403	151	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	< 0.3	2019-12-23
9340408	152	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	< 0.3	2019-12-23
9340406	153	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	0.5 ± 0.4	2019-12-23
9340418	155	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.1 ± 0.4	2019-12-23
9340409	156	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	0.5 ± 0.4	2019-12-23
9340417	159	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.4 ± 0.4	2019-12-23
9340415	159A	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	0.7 ± 0.4	2019-12-23
9340410	160	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	< 0.3	2019-12-23
9340412	161	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	0.8 ± 0.4	2019-12-23
9340411	162	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	0.9 ± 0.4	2019-12-23
9339859	163	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	6.8 ± 0.6	2019-12-23
9339860	163	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.6 ± 0.4	2019-12-23
9339857	164	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	0.9 ± 0.4	2019-12-23
9339861	165	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.3 ± 0.4	2019-12-23
9339862	165B	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.0 ± 0.5	2019-12-23
9339863	165C	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	0.8 ± 0.4	2019-12-23
9339864	165C	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	0.7 ± 0.4	2019-12-23
9339865	167	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	0.9 ± 0.4	2019-12-23
9339856	168	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	< 0.3	2019-12-23
9339866	169	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.5 ± 0.4	2019-12-23
9339867	169	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.3 ± 0.4	2019-12-23
9339844	169	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	2.2 ± 0.4	2019-12-23
9340467	170	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	< 0.3	2019-12-23
9339801	170	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	< 0.3	2019-12-23
9339805	170	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	0.7 ± 0.4	2019-12-23
9339858	170B	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	0.8 ± 0.4	2019-12-23
9339852	176A	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.6 ± 0.4	2019-12-23
9339846	179	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.0 ± 0.4	2019-12-23
9339847	179	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	0.7 ± 0.4	2019-12-23

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9339855	180	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	2.1 ± 0.5	2019-12-23
9339854	182	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.4 ± 0.4	2019-12-23
9339851	184	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.2 ± 0.4	2019-12-23
9339849	184	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	< 0.3	2019-12-23
9339850	184	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	0.7 ± 0.4	2019-12-23
9339853	186	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	< 0.3	2019-12-23
9339848	188	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	2.4 ± 0.5	2019-12-23
9339826	209	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.9 ± 0.4	2019-12-23
9339829	215	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	0.9 ± 0.4	2019-12-23
9339830	215WR	2019-12-16 @ 1:00 pm	2019-12-19 @ 8:00 am	1.5 ± 0.4	2019-12-23
9339831	219A	2019-12-16 @ 1:00 pm	2019-12-19 @ 8:00 am	0.8 ± 0.4	2019-12-23
9339827	219A	2019-12-16 @ 1:00 pm	2019-12-19 @ 8:00 am	0.7 ± 0.4	2019-12-23
9339833	221	2019-12-16 @ 1:00 pm	2019-12-19 @ 8:00 am	1.0 ± 0.4	2019-12-23
9339834	223	2019-12-16 @ 1:00 pm	2019-12-19 @ 8:00 am	1.1 ± 0.4	2019-12-23
9339832	232	2019-12-16 @ 1:00 pm	2019-12-19 @ 8:00 am	1.1 ± 0.4	2019-12-23
9339828	234	2019-12-16 @ 1:00 pm	2019-12-19 @ 8:00 am	0.5 ± 0.4	2019-12-23
9339835	236	2019-12-16 @ 1:00 pm	2019-12-19 @ 8:00 am	1.0 ± 0.4	2019-12-23
9339837	238	2019-12-16 @ 1:00 pm	2019-12-19 @ 8:00 am	1.1 ± 0.4	2019-12-23
9339838	240	2019-12-16 @ 1:00 pm	2019-12-19 @ 8:00 am	1.0 ± 0.4	2019-12-23
9340453	AP-100E	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.2 ± 0.4	2019-12-23
9340456	AP2	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	2.5 ± 0.4	2019-12-23
9340437	AP3	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	3.2 ± 0.4	2019-12-23
9340460	BSM	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.3 ± 0.4	2019-12-23
9340459	BSM	2019-12-16 @ 12:00 pm	2019-12-19 @ 8:00 am	1.2 ± 0.4	2019-12-23



# EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 193598

NOMINAL Conditions: Radon Conc \_\_\_\_\_ pCi/L Rel. Hum \_\_\_\_\_ % Temp. \_\_\_\_\_ F

Temp °F 70.1  
RH % 50.1  
Avg pCi/L 25.4

Date Start: 12/21/19 Date Stop: 12/23/19

Time Start: 0815 Time Stop: 0815

(Group 1)  
Device No.'s: (20) Char. Bags-

9340001 thru 9340020

55

Temp °F 70.1  
RH % 50.1  
Avg pCi/L 25.4

Date Start: 12/21/19 Date Stop: 12/23/19

Time Start: 0829 Time Stop: 0820

(Group 2)  
Device No.'s: (20) Char. Bags-

9340021 thru 9340040

54

Temp °F 70.1  
RH % 50.1  
Avg pCi/L 25.4

Date Start: 12/21/19 Date Stop: 12/23/19

Time Start: 0825 Time Stop: 0825

(Group 3)  
Device No.'s: (20) Char. Bags-

9340041 thru 9340060

53

Note: All times are in 24-hour (military) notation, Eastern Standard Time (EST)  
Background = 7 µR/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
9340067	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.1 $\pm$ 2.4 D	2020-01-03
9340035	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	22.5 $\pm$ 2.3 D	2020-01-03
9340003	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.2 $\pm$ 2.4 D	2020-01-03
9340089	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	23.3 $\pm$ 2.3 D	2020-01-03
9340072	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	18.3 $\pm$ 2.0 D	2020-01-03
9340040	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.3 $\pm$ 2.6 D	2020-01-03
9340008	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	24.8 $\pm$ 2.5 D	2020-01-03
9340094	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.7 $\pm$ 2.5 D	2020-01-03
9340099	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	27.5 $\pm$ 2.6 D	2020-01-03
9340077	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.2 $\pm$ 2.5 D	2020-01-03
9340045	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	24.7 $\pm$ 2.4 D	2020-01-03
9340013	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.9 $\pm$ 2.6 D	2020-01-03
9340018	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	29.1 $\pm$ 2.8 D	2020-01-03
9341704	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.1 $\pm$ 2.4 D	2020-01-03
9340050	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.2 $\pm$ 2.6 D	2020-01-03
9340023	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	28.2 $\pm$ 2.7 D	2020-01-03
9341709	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.5 $\pm$ 2.4 D	2020-01-03
9340055	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.8 $\pm$ 2.6 D	2020-01-03
9340060	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.3 $\pm$ 2.5 D	2020-01-03
9340028	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	23.9 $\pm$ 2.3 D	2020-01-03
9341714	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	28.3 $\pm$ 2.7 D	2020-01-03
9340082	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.4 $\pm$ 2.6 D	2020-01-03
9340065	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.2 $\pm$ 2.4 D	2020-01-03
9340033	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.2 $\pm$ 2.5 D	2020-01-03
9341719	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.7 $\pm$ 2.5 D	2020-01-03
9340001	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.3 $\pm$ 2.5 D	2020-01-03
9340087	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.8 $\pm$ 2.4 D	2020-01-03
9340070	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	19.5 $\pm$ 2.4 D	2020-01-03
9340038	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	24.7 $\pm$ 2.3 D	2020-01-03
9340006	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.2 $\pm$ 2.4 D	2020-01-03
9340092	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	31.4 $\pm$ 2.8 D	2020-01-03
9340097	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.7 $\pm$ 2.5 D	2020-01-03
9340075	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	29.6 $\pm$ 2.6 D	2020-01-03
9340043	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	28.1 $\pm$ 2.6 D	2020-01-03
9340011	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.8 $\pm$ 2.5 D	2020-01-03
9340016	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	23.2 $\pm$ 2.4 D	2020-01-03
9341702	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.8 $\pm$ 2.5 D	2020-01-03

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9340048	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.5 ± 2.4 D	2020-01-03
9340021	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.7 ± 2.6 D	2020-01-03
9341707	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.8 ± 2.4 D	2020-01-03
9340053	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.8 ± 2.5 D	2020-01-03
9340058	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	28.5 ± 2.7 D	2020-01-03
9340026	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.9 ± 2.4 D	2020-01-03
9341712	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.3 ± 2.4 D	2020-01-03
9340080	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.1 ± 2.4 D	2020-01-03
9340063	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.8 ± 2.5 D	2020-01-03
9340031	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	24.9 ± 2.4 D	2020-01-03
9341717	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.7 ± 2.4 D	2020-01-03
9340085	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.9 ± 2.5 D	2020-01-03
9340068	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.2 ± 2.5 D	2020-01-03
9340036	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	23.6 ± 2.3 D	2020-01-03
9340004	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.9 ± 2.6 D	2020-01-03
9340090	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.3 ± 2.5 D	2020-01-03
9340073	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.8 ± 2.5 D	2020-01-03
9340041	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.6 ± 2.4 D	2020-01-03
9340009	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	24.1 ± 2.4 D	2020-01-03
9340095	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.2 ± 2.5 D	2020-01-03
9340100	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.5 ± 2.4 D	2020-01-03
9340078	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.0 ± 2.4 D	2020-01-03
9340046	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	28.0 ± 2.6 D	2020-01-03
9340014	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	21.8 ± 2.8 D	2020-01-03
9340019	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.0 ± 2.5 D	2020-01-03
9341705	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	27.8 ± 2.6 D	2020-01-03
9340051	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.5 ± 2.4 D	2020-01-03
9340056	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.7 ± 2.6 D	2020-01-03
9340024	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	28.3 ± 2.5 D	2020-01-03
9341710	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.2 ± 2.3 D	2020-01-03
9340061	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	28.9 ± 2.6 D	2020-01-03
9340029	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	23.0 ± 2.3 D	2020-01-03
9341715	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	27.0 ± 2.5 D	2020-01-03
9340083	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.9 ± 2.4 D	2020-01-03
9340066	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.1 ± 2.4 D	2020-01-03
9340034	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.4 ± 2.5 D	2020-01-03
9341720	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.3 ± 2.5 D	2020-01-03

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9340002	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.7 ± 2.5 D	2020-01-03
9340088	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.4 ± 2.5 D	2020-01-03
9340071	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.9 ± 2.4 D	2020-01-03
9340039	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.9 ± 2.5 D	2020-01-03
9340007	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.9 ± 2.4 D	2020-01-03
9340093	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.1 ± 2.5 D	2020-01-03
9340098	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.8 ± 2.5 D	2020-01-03
9340076	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.1 ± 2.5 D	2020-01-03
9340044	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.2 ± 2.5 D	2020-01-03
9340012	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	22.5 ± 2.2 D	2020-01-03
9340017	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.3 ± 2.5 D	2020-01-03
9341703	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.0 ± 2.5 D	2020-01-03
9340049	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.0 ± 2.5 D	2020-01-03
9340022	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	28.6 ± 2.6 D	2020-01-03
9341708	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	28.8 ± 2.8 D	2020-01-03
9340054	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.8 ± 2.5 D	2020-01-03
9340059	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.5 ± 2.6 D	2020-01-03
9340027	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.6 ± 2.5 D	2020-01-03
9341713	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.5 ± 2.5 D	2020-01-03
9340081	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	18.4 ± 2.1 D	2020-01-03
9340064	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.5 ± 2.5 D	2020-01-03
9340032	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.1 ± 2.4 D	2020-01-03
9341718	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	23.7 ± 2.4 D	2020-01-03
9340086	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.9 ± 2.6 D	2020-01-03
9340069	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.6 ± 2.5 D	2020-01-03
9340037	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	28.4 ± 2.6 D	2020-01-03
9340005	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	???? DIF1	2020-01-03
9340091	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.5 ± 2.5 D	2020-01-03
9340096	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.2 ± 2.5 D	2020-01-03
9340074	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	27.7 ± 2.5 D	2020-01-03
9340042	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.6 ± 2.5 D	2020-01-03
9340010	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.5 ± 2.5 D	2020-01-03
9341701	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	22.9 ± 2.3 D	2020-01-03
9340047	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.7 ± 2.5 D	2020-01-03
9340015	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.4 ± 2.5 D	2020-01-03
9340020	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	24.1 ± 2.4 D	2020-01-03
9341706	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	31.0 ± 2.7 D	2020-01-03

January 3, 2020

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

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>
9340052	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.4 ± 2.6 D	2020-01-03
9340057	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.3 ± 2.5 D	2020-01-03
9340025	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.1 ± 2.4 D	2020-01-03
9341711	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	22.5 ± 2.2 D	2020-01-03
9340079	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.9 ± 2.5 D	2020-01-03
9340062	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.6 ± 2.5 D	2020-01-03
9340030	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.0 ± 2.4 D	2020-01-03
9341716	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.1 ± 2.4 D	2020-01-03
9340084	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.5 ± 2.3 D	2020-01-03

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



### Radon Test Kit Chain of Custody

Project Name: MCPS Radon 2019 Week 2

Name of Schools:

- |                               |                     |
|-------------------------------|---------------------|
| 1. Argyle M.S.                | 13. Candelwood E.S. |
| 2. Banneker M.S.              | 14. Drew E.S.       |
| 3. Bel Pre E.S.               | 15. Fallsmead E.S.  |
| 4. Bells Mill E.S.            | 16. Farquhar M.S.   |
| 5. Bethesda Maintenance Depot | 17. Kennedy H.S.    |
| 6. Beverly Farms E.S.         | 18. Luxmanor E.S.   |
| 7. Blake H.S.                 | 19. Magruder H.S.   |
| 8. Dufief E.S.                | 20. Redland M.S.    |
| 9. Briggs Chaney M.S.         | 21. Shriver E.S.    |
| 10. Brookhaven E.S.           | 22. Smith Center    |
| 11. Burtonsville E.S.         | 23. Viers Mill E.S. |
| 12. Cabin John M.S.           | 24. Wheaton H.S.    |

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	Date	Initials
Radon Test Kits Deployed	12/16/19 to 12/17/19	
Radon Test Kits Collected	12/19/19 to 12/20/19	
Radon Test Kits Shipped to Lab*	12/20/19	
Radon Test Kits Received by Lab*	12/23/19	

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





## MONTGOMERY COUNTY PUBLIC SCHOOLS RADON TESTING

**Executive Summary:**  
**John F. Kennedy High School**  
1901 Randolph Road,  
Silver Spring, MD 20902

Date of Test Report:	3/15/2019
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:	0
Low Value:	1.3
High Value:	3.9

### Project Status

**Retesting completed:** No further action at this time.





March 15, 2019

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

Re: Radon Testing Services

Location: John F. Kennedy High School  
1901 Randolph Road  
Silver Spring, MD 20902

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 John F. Kennedy High School, located at 1901 Randolph Road, Silver Spring, MD 20902 (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 three (3) activated charcoal (AC) radon test kit. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on February 28, 2019 to retrieve the radon sampling test kit. A floor plan map of the building with the test location is included as Attachment A of this report.

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

### **Evaluation of Testing Conditions:**

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

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



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

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

**Results:**

The results of the radon test analysis indicated the following:

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

Notes:  
D -Duplicate Sample

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

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

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



# **ATTACHMENT B**

Radon Test Summary Spreadsheet

<b>Radon Testing Results</b>		
<b>John F. Kennedy High School</b>		
<b>Testing period: 2/25/19 - 2/28/19</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result (pCi/L)</b>
3923367	125	1.6
3923368	125 (D)	1.3
3923369	167C	3.9

**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

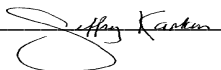
MCPS Radon Survey John F Kennedy HS  
1901 Randolph Road  
Glenmont MD 20902


Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
3220647	3923367	02/25/2019 4:54 pm	02/28/2019 4:22 pm	First Floor Room 125	1.6
3220648	3923368	02/25/2019 4:54 pm	02/28/2019 4:22 pm	First Floor Room 125 Duplicate	1.3
3220649	3923369	02/25/2019 5:12 pm	02/28/2019 4:27 pm	First Floor Room 167C	3.9

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

Distributed by: Intertek-PSI (VA)

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

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

**Disclaimer:**

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

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





## MONTGOMERY COUNTY PUBLIC SCHOOLS RADON TESTING

**Executive Summary:**  
**John F. Kennedy High School**  
1901 Randolph Road,  
Silver Spring, MD 20902

Date of Test Report:	2/13/2018
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:	116
# of Rooms $\geq 4.0$ pCi/L:	2
Low Value:	< 0.4
High Value:	4.9
Rooms with Results $\geq 4.0$ pCi/L:	125 (D) 167C

### Project Status

**Initial testing complete:** Re-test needed for results  $\geq 4.0$  pCi/L



February 13, 2019

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

Re: Radon Testing Services

Location: John F. Kennedy High School  
1901 Randolph Road  
Silver Spring, MD 20902

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 John F. Kennedy High School, located at 1901 Randolph Road, Silver Spring, MD 20902 (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 November 13, 2018 and deployed one hundred thirty-eight (138) activated charcoal (AC) radon test kits. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on November 16, 2018 to retrieve the radon sampling test kits. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

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

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
$\geq 4.0$ pCi/L	125 (D)	4.2
	167C	4.9
$\leq 4.0$ 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>John F. Kennedy High School</b>		
<b>Testing period: 11/13/18 - 11/16/18</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result (pCi/L)</b>
3919845	100	1.3
3918748	101	1.0
3918743	102	2.8
3918747	103	1.5
3918760	104	1.8
3918746	105	1.5
3918752	106	2.6
3918745	107	2.2
3918744	109	1.5
3918790	110	2.0
3918742	111	2.7
3918789	112	0.7
3918768	113	0.6
3918788	114	1.5
3918787	116	1.1
3918783	118	1.5
3918763	119	0.5
3918782	120	0.7
3918761	121	< 0.4
3918780	122	< 0.4
3918786	123	2.9
3918779	124	0.9
3918784	125	3.8
3918777	126	0.9
3918775	129	1.2
3918774	131	1.2
3918728	132	1.9
3918772	133	1.8
3918725	136	0.6
3918724	138	2.1
3918771	139	1.9
3918723	141	0.6
3918722	143	0.7
3918798	144	1.1
3918800	145	0.6
3918797	147	0.8
3918770	149	0.8
3919391	150	0.8
3919392	150	0.8
3918791	151	0.8
3918732	153	< 0.4
3918731	155	0.7
3918733	156	0.4

<b>Radon Testing Results</b>		
<b>John F. Kennedy High School</b>		
<b>Testing period: 11/13/18 - 11/16/18</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result (pCi/L)</b>
3918739	157	1.9
3918738	159	0.8
3918737	160	< 0.4
3918735	161	0.6
3918713	162	0.8
3919403	164	0.9
3918720	165	2.5
3919401	166	1.9
3918717	167	2.1
3918795	168	0.6
3918792	170	0.5
3919395	171	2.5
3918716	171	2.9
3919393	176	0.4
3881250	179	0.6
3881230	179	1.0
3919396	182	2.4
3919399	184	1.7
3919398	188	1.8
3919400	190	2.7
3918846	209	2.0
3918842	215	1.0
3918843	215	1.0
3918841	234	0.5
3918848	260	0.8
3918847	264	0.9
3918849	269	0.9
3918850	272	0.8
3919846	100A	1.1
3919848	100B	0.7
3919849	100E	1.5
3919850	100F	1.2
3919411	100I	1.0
3919412	100L	1.5
3919413	100M	1.3
3919414	100N	2.6
3919416	100O	2.4
3918750	101A	1.5
3918749	101C	1.3
3918740	101D	1.2
3918759	104A	1.9
3918758	104B	2.0
3919419	104C	1.8



<b>Radon Testing Results</b>		
<b>John F. Kennedy High School</b>		
<b>Testing period: 11/13/18 - 11/16/18</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result (pCi/L)</b>
3918757	104D	1.3
3918755	104G	2.0
3918754	104H	1.4
3918753	104J	1.9
3919420	104K	0.9
3918714	104K	1.5
3918766	108A	1.3
3918764	108B	1.5
3918767	108C	0.9
3919417	110Q	2.5
3918715	111B	1.2
3918762	121C	0.4
3918781	122B	0.6
3918776	129A	1.0
3918729	132A	2.0
3918730	132B	2.7
3918773	133B	1.8
3918726	139B	0.5
3918769	149A	1.1
3918799	149E	0.7
3919409	163D	1.4
3919410	163E	0.7
3919408	163G	1.4
3918718	167B	3.2
3918719	167C	4.9
3918793	170A	< 0.4
3918794	170B	0.4
3919394	176A	0.7
3918844	215 - Workroom	0.8
3919405	Auditorium	1.6
3919404	Auditorium	1.8
3919406	Auditorium Stage	1.7
3919418	Building Services	1.5
3919844	Outside Concession	0.6
3919407	Projector Room	1.8
3918712	Room Right of 100Q	1.3

<b>Radon Testing Results</b>		
<b>John F. Kennedy High School</b>		
<b>Testing period: 11/13/18 - 11/16/18</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result (pCi/L)</b>
3919847	100A (D)	0.9
3919415	100N (D)	2.8
3918756	104G (D)	2.2
3918765	108B (D)	1.5
3918785	125 (D)	4.2
3918778	126 (D)	0.9
3918721	143 (D)	0.8
3918736	161 (D)	1.0
3918734	162 (D)	0.7
3919402	166 (D)	2.1
3919397	182 (D)	2.5
3918845	215 - Workroom (D)	1.0
3918817	Field Blank	< 0.4
3918820	Field Blank	< 0.4
3917862	Office Blank	< 0.4
3918819	Trip Blank	< 0.4

**Table Notes:**

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control

# **ATTACHMENT C**

Laboratory Analytical Results

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 JFK HS  
1901 Randolph Road  
Silver Spring MD 20902

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3196186	3918712	11/13/2018 6:27 am	11/16/2018 6:20 am	First Floor Room 100Q Right	1.3
3196187	3918714	11/13/2018 6:28 am	11/16/2018 6:21 am	First Floor Room 104K	1.5
3196188	3918753	11/13/2018 6:29 am	11/16/2018 6:22 am	First Floor Room 104J	1.9
3196189	3918754	11/13/2018 6:30 am	11/16/2018 6:23 am	First Floor Room 104H	1.4
3196190	3918755	11/13/2018 6:31 am	11/16/2018 6:25 am	First Floor Room 104G	2.0
3196191	3918756	11/13/2018 6:31 am	11/16/2018 6:25 am	First Floor Room 104G Duplicate	2.2
3196192	3918757	11/13/2018 6:32 am	11/16/2018 6:26 am	First Floor Room 104D	1.3
3196193	3918758	11/13/2018 6:33 am	11/16/2018 6:27 am	First Floor Room 104B	2.0
3196194	3918759	11/13/2018 6:34 am	11/16/2018 6:28 am	First Floor Room 104A	1.9
3196195	3918760	11/13/2018 6:35 am	11/16/2018 6:29 am	First Floor Room 104	1.8


**Comment:** A copy of this report was e-mailed to PSI - VA.

Test Performed By: Nan Lin Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 11/17/2018 Date Logged: 11/17/2018 Date Analyzed: 11/17/2018 Date Reported: 11/28/2018

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.

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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 JFK HS  
1901 Randolph Road  
Silver Spring MD 20902

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3196196	3918752	11/13/2018 6:36 am	11/16/2018 6:30 am	First Floor Room 106	2.6
3196197	3918742	11/13/2018 6:38 am	11/16/2018 6:31 am	First Floor Room 111	2.7
3196198	3918715	11/13/2018 6:40 am	11/16/2018 6:32 am	First Floor Room 111B	1.2
3196199	3918743	11/13/2018 6:42 am	11/16/2018 6:33 am	First Floor Room 102	2.8
3196200	3918744	11/13/2018 6:43 am	11/16/2018 6:34 am	First Floor Room 109	1.5
3196201	3918745	11/13/2018 6:44 am	11/16/2018 6:35 am	First Floor Room 107	2.2
3196202	3918746	11/13/2018 6:45 am	11/16/2018 6:36 am	First Floor Room 105	1.5
3196203	3918747	11/13/2018 6:46 am	11/16/2018 6:37 am	First Floor Room 103	1.5
3196204	3918748	11/13/2018 6:47 am	11/16/2018 6:38 am	First Floor Room 101	1.0
3196205	3918750	11/13/2018 6:48 am	11/16/2018 6:39 am	First Floor Room 101A	1.5

**Comment:** A copy of this report was e-mailed to PSI - VA.

Test Performed By: Nan Lin Lian Zadeng

Distributed by: Intertek-PSI (VA)

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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  
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MCPS Radon Survey JFK HS  
1901 Randolph Road  
Silver Spring MD 20902

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3196206	3918749	11/13/2018 6:49 am	11/16/2018 6:40 am	First Floor Room 101C	1.3
3196207	3918740	11/13/2018 6:50 am	11/16/2018 6:41 am	First Floor Room 101D	1.2
3196208	3918739	11/13/2018 6:52 am	11/16/2018 6:42 am	First Floor Room 157	1.9
3196209	3918738	11/13/2018 6:53 am	11/16/2018 6:43 am	First Floor Room 159	0.8
3196210	3918737	11/13/2018 6:54 am	11/16/2018 6:44 am	First Floor Room 160	< 0.4
3196211	3918735	11/13/2018 6:55 am	11/16/2018 6:45 am	First Floor Room 161	0.6
3196212	3918736	11/13/2018 6:55 am	11/16/2018 6:45 am	First Floor Room 161 Duplicate	1.0
3196213	3918713	11/13/2018 6:57 am	11/16/2018 6:48 am	First Floor Room 162	0.8
3196214	3918734	11/13/2018 6:57 am	11/16/2018 6:48 am	First Floor Room 162 Duplicate	0.7
3196215	3918731	11/13/2018 6:59 am	11/16/2018 6:49 am	First Floor Room 155	0.7

**Comment:** A copy of this report was e-mailed to PSI - VA.

Test Performed By: Nan Lin Lian Zadeng

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Laboratory Report for:

Property Tested: Project # 04481387-1

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2930 Eskridge Road  
Fairfax VA 22031

MCPS Radon Survey JFK HS  
1901 Randolph Road  
Silver Spring MD 20902

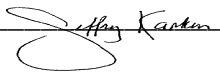
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3196216	3918732	11/13/2018 7:01 am	11/16/2018 6:50 am	First Floor Room 153	< 0.4
3196217	3918733	11/13/2018 7:01 am	11/16/2018 6:51 am	First Floor Room 156	0.4
3196218	3918791	11/13/2018 7:03 am	11/16/2018 6:52 am	First Floor Room 151	0.8
3196219	3918792	11/13/2018 7:05 am	11/16/2018 6:53 am	First Floor Room 170	0.5
3196220	3918793	11/13/2018 7:06 am	11/16/2018 6:54 am	First Floor Room 170A	< 0.4
3196221	3918794	11/13/2018 7:06 am	11/16/2018 6:55 am	First Floor Room 170B	0.4
3196222	3918795	11/13/2018 7:08 am	11/16/2018 6:56 am	First Floor Room 168	0.6
3196223	3919410	11/13/2018 7:49 am	11/16/2018 8:10 am	First Floor Room 163E	0.7
3196224	3918797	11/13/2018 7:10 am	11/16/2018 6:58 am	First Floor Room 147	0.8
3196225	3918798	11/13/2018 7:11 am	11/16/2018 6:59 am	First Floor Room 144	1.1

**Comment:** A copy of this report was e-mailed to PSI - VA.

Test Performed By: Nan Lin Lian Zadeng

Distributed by: Intertek-PSI (VA)

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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 JFK HS  
1901 Randolph Road  
Silver Spring MD 20902

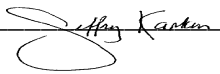
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3196226	3918799	11/13/2018 7:13 am	11/16/2018 7:00 am	First Floor Room 149E	0.7
3196227	3918800	11/13/2018 7:14 am	11/16/2018 7:01 am	First Floor Room 145	0.6
3196228	3918721	11/13/2018 7:16 am	11/16/2018 7:02 am	First Floor Room 143	0.8
3196229	3918722	11/13/2018 7:16 am	11/16/2018 7:02 am	First Floor Room 143 Duplicate	0.7
3196230	3918723	11/13/2018 7:17 am	11/16/2018 7:04 am	First Floor Room 141	0.6
3196231	3918724	11/13/2018 7:18 am	11/16/2018 7:05 am	First Floor Room 138	2.1
3196232	3918725	11/13/2018 7:19 am	11/16/2018 7:06 am	First Floor Room 136	0.6
3196233	3918726	11/13/2018 7:20 am	11/16/2018 7:07 am	First Floor Room 139B	0.5
3196234	3919844	11/13/2018 7:21 am	11/16/2018 7:53 am	First Floor Room Concession	0.6
3196235	3918728	11/13/2018 7:22 am	11/16/2018 7:09 am	First Floor Room 132	1.9

**Comment:** A copy of this report was e-mailed to PSI - VA.

Test Performed By: Nan Lin Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 11/17/2018 Date Logged: 11/17/2018 Date Analyzed: 11/17/2018 Date Reported: 11/28/2018

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 JFK HS  
1901 Randolph Road  
Silver Spring MD 20902

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3196236	3918729	11/13/2018 7:23 am	11/16/2018 7:10 am	First Floor Room 132A	2.0
3196237	3918730	11/13/2018 7:23 am	11/16/2018 7:11 am	First Floor Room 132B	2.7
3196238	3918771	11/13/2018 7:25 am	11/16/2018 7:12 am	First Floor Room 139	1.9
3196239	3918772	11/13/2018 7:26 am	11/16/2018 7:13 am	First Floor Room 133	1.8
3196240	3918773	11/13/2018 7:28 am	11/16/2018 7:14 am	First Floor Room 133B	1.8
3196241	3918774	11/13/2018 7:29 am	11/16/2018 7:15 am	First Floor Room 131	1.2
3196242	3918775	11/13/2018 7:30 am	11/16/2018 7:16 am	First Floor Room 129	1.2
3196243	3918776	11/13/2018 7:30 am	11/16/2018 7:17 am	First Floor Room 129A	1.0
3196244	3918777	11/13/2018 7:32 am	11/16/2018 7:19 am	First Floor Room 126	0.9
3196245	3918778	11/13/2018 7:32 am	11/16/2018 7:19 am	First Floor Room 126 Duplicate	0.9

**Comment:** A copy of this report was e-mailed to PSI - VA.

Test Performed By: Nan Lin Lian Zadeng

Distributed by: Intertek-PSI (VA)

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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 JFK HS  
1901 Randolph Road  
Silver Spring MD 20902

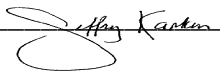
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3196246	3918779	11/13/2018 7:35 am	11/16/2018 7:20 am	First Floor Room 124	0.9
3196247	3918780	11/13/2018 7:36 am	11/16/2018 7:21 am	First Floor Room 122	< 0.4
3196248	3918781	11/13/2018 7:38 am	11/16/2018 7:22 am	First Floor Room 122B	0.6
3196249	3918782	11/13/2018 7:39 am	11/16/2018 7:23 am	First Floor Room 120	0.7
3196250	3918783	11/13/2018 7:40 am	11/16/2018 7:24 am	First Floor Room 118	1.5
3196251	3918784	11/13/2018 7:41 am	11/16/2018 7:25 am	First Floor Room 125	3.8
3196252	3918785	11/13/2018 7:41 am	11/16/2018 7:25 am	First Floor Room 125 Duplicate	4.2
3196253	3918786	11/13/2018 7:42 am	11/16/2018 7:27 am	First Floor Room 123	2.9
3196254	3918787	11/13/2018 7:43 am	11/16/2018 7:28 am	First Floor Room 116	1.1
3196255	3918788	11/13/2018 7:44 am	11/16/2018 7:29 am	First Floor Room 114	1.5

**Comment:** A copy of this report was e-mailed to PSI - VA.

Test Performed By: Nan Lin Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 11/17/2018 Date Logged: 11/17/2018 Date Analyzed: 11/17/2018 Date Reported: 11/28/2018

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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 JFK HS  
1901 Randolph Road  
Silver Spring MD 20902

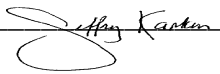
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3196256	3918789	11/13/2018 7:45 am	11/16/2018 7:30 am	First Floor Room 112	0.7
3196257	3918790	11/13/2018 7:46 am	11/16/2018 7:31 am	First Floor Room 110	2.0
3196258	3918761	11/13/2018 7:48 am	11/16/2018 7:32 am	First Floor Room 121	< 0.4
3196259	3918762	11/13/2018 7:49 am	11/16/2018 7:33 am	First Floor Room 121C	0.4
3196260	3918763	11/13/2018 7:50 am	11/16/2018 7:34 am	First Floor Room 119	0.5
3196261	3918764	11/13/2018 7:51 am	11/16/2018 7:35 am	First Floor Room 108B	1.5
3196262	3918765	11/13/2018 7:51 am	11/16/2018 7:35 am	First Floor Room 108B Duplicate	1.5
3196263	3918766	11/13/2018 7:53 am	11/16/2018 7:37 am	First Floor Room 108A	1.3
3196264	3918767	11/13/2018 7:55 am	11/16/2018 7:38 am	First Floor Room 108C	0.9
3196265	3918768	11/13/2018 7:56 am	11/16/2018 7:39 am	First Floor Room 113	0.6

**Comment:** A copy of this report was e-mailed to PSI - VA.

Test Performed By: Nan Lin Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 11/17/2018 Date Logged: 11/17/2018 Date Analyzed: 11/17/2018 Date Reported: 11/28/2018

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

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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 JFK HS  
1901 Randolph Road  
Silver Spring MD 20902

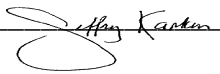
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3196266	3918769	11/13/2018 7:58 am	11/16/2018 7:40 am	First Floor Room 149A	1.1
3196267	3918770	11/13/2018 7:59 am	11/16/2018 7:41 am	First Floor Room 149	0.8
3196268	3919391	11/13/2018 8:08 am	11/16/2018 7:42 am	First Floor Room 150	0.8
3196269	3919392	11/13/2018 8:09 am	11/16/2018 7:43 am	First Floor Room 150	0.8
3196270	3919393	11/13/2018 8:12 am	11/16/2018 7:44 am	First Floor Room 176	0.4
3196271	3919394	11/13/2018 8:13 am	11/16/2018 7:45 am	First Floor Room 176A	0.7
3196272	3919395	11/13/2018 8:19 am	11/16/2018 7:46 am	First Floor Room 171	2.5
3196273	3919396	11/13/2018 8:25 am	11/16/2018 7:47 am	First Floor Room 182	2.4
3196274	3919397	11/13/2018 8:25 am	11/16/2018 7:47 am	First Floor Room 182 Duplicate	2.5
3196275	3919398	11/13/2018 8:30 am	11/16/2018 7:49 am	First Floor Room 188	1.8

**Comment:** A copy of this report was e-mailed to PSI - VA.

Test Performed By: Nan Lin Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 11/17/2018 Date Logged: 11/17/2018 Date Analyzed: 11/17/2018 Date Reported: 11/28/2018

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 JFK HS  
1901 Randolph Road  
Silver Spring MD 20902

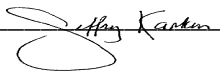
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3196276	3919399	11/13/2018 8:34 am	11/16/2018 7:50 am	First Floor Room 184	1.7
3196277	3919400	11/13/2018 8:40 am	11/16/2018 7:51 am	First Floor Room 190	2.7
3196278	3918716	11/13/2018 8:47 am	11/16/2018 7:52 am	First Floor Room 171	2.9
3196279	3918717	11/13/2018 9:09 am	11/16/2018 7:53 am	First Floor Room 167	2.1
3196280	3918718	11/13/2018 9:10 am	11/16/2018 7:54 am	First Floor Room 167B	3.2
3196281	3918719	11/13/2018 9:11 am	11/16/2018 7:55 am	First Floor Room 167C	4.9
3196282	3918720	11/13/2018 9:13 am	11/16/2018 7:56 am	First Floor Room 165	2.5
3196283	3919401	11/13/2018 9:17 am	11/16/2018 7:59 am	First Floor Room 166	1.9
3196284	3919402	11/13/2018 9:17 am	11/16/2018 8:00 am	First Floor Room 166 Duplicate	2.1
3196285	3919403	11/13/2018 9:20 am	11/16/2018 8:01 am	First Floor Room 164	0.9

**Comment:** A copy of this report was e-mailed to PSI - VA.

Test Performed By: Nan Lin Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 11/17/2018 Date Logged: 11/17/2018 Date Analyzed: 11/17/2018 Date Reported: 11/28/2018

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 JFK HS  
1901 Randolph Road  
Silver Spring MD 20902

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3196286	3919404	11/13/2018 9:26 am	11/16/2018 8:02 am	First Floor Room AUD	1.8
3196287	3919405	11/13/2018 9:26 am	11/16/2018 8:03 am	First Floor Room AUD	1.6
3196288	3919406	11/13/2018 9:28 am	11/16/2018 8:04 am	First Floor Room AUD Stage	1.7
3196289	3919407	11/13/2018 9:45 am	11/16/2018 8:05 am	First Floor Proj Room	1.8
3196290	3919408	11/13/2018 9:46 am	11/16/2018 8:06 am	First Floor Room 163G	1.4
3196291	3919409	11/13/2018 9:47 am	11/16/2018 8:07 am	First Floor Room 163D	1.4
3196292	3919845	11/13/2018 10:07 am	11/16/2018 8:08 am	First Floor Room 100	1.3
3196293	3919846	11/13/2018 10:13 am	11/16/2018 8:09 am	First Floor Room 100A	1.1
3196294	3919847	11/13/2018 10:13 am	11/16/2018 8:10 am	First Floor Room 100A DUP	0.9
3196295	3919848	11/13/2018 10:14 am	11/16/2018 8:11 am	First Floor Room 100B	0.7

**Comment:** A copy of this report was e-mailed to PSI - VA.

Test Performed By: Nan Lin Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 11/17/2018 Date Logged: 11/17/2018 Date Analyzed: 11/17/2018 Date Reported: 11/28/2018

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 JFK HS  
1901 Randolph Road  
Silver Spring MD 20902

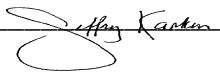
Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3196296	3919849	11/13/2018 10:16 am 11/16/2018 8:12 am	First Floor Room 100E	1.5
3196297	3919850	11/13/2018 10:17 am 11/16/2018 8:13 am	First Floor Room 100F	1.2
3196298	3919411	11/13/2018 10:18 am 11/16/2018 8:14 am	First Floor Room 100I	1.0
3196299	3919412	11/13/2018 10:19 am 11/16/2018 8:15 am	First Floor Room 100L	1.5
3196300	3919413	11/13/2018 10:21 am 11/16/2018 8:16 am	First Floor Room 100M	1.3
3196301	3919414	11/13/2018 10:23 am 11/16/2018 8:17 am	First Floor Room 100N	2.6
3196302	3919415	11/13/2018 10:23 am 11/16/2018 8:18 am	First Floor Room 100N Duplicate	2.8
3196303	3919416	11/13/2018 10:29 am 11/16/2018 8:19 am	First Floor Room 100O	2.4
3196304	3919417	11/13/2018 10:31 am 11/16/2018 8:20 am	First Floor Room 110Q	2.5
3196305	3919418	11/13/2018 10:32 am 11/16/2018 8:21 am	First Floor Bldg Service Office	1.5

**Comment:** A copy of this report was e-mailed to PSI - VA.

Test Performed By: Nan Lin Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 11/17/2018 Date Logged: 11/17/2018 Date Analyzed: 11/17/2018 Date Reported: 11/28/2018

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 JFK HS  
1901 Randolph Road  
Silver Spring MD 20902

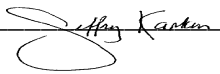
Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3196306	3919419	11/13/2018 10:34 am 11/16/2018 8:22 am	First Floor Room 104C	1.8
3196307	3919420	11/13/2018 10:37 am 11/16/2018 8:23 am	First Floor Room 104K	0.9
3196308	3918841	11/13/2018 10:57 am 11/16/2018 8:24 am	First Floor Room 234	0.5
3196309	3918842	11/13/2018 11:02 am 11/16/2018 8:25 am	First Floor Room 215	1.0
3196310	3918843	11/13/2018 11:02 am 11/16/2018 8:26 am	First Floor Room 215	1.0
3196311	3918844	11/13/2018 11:03 am 11/16/2018 8:27 am	First Floor Room 215	0.8
3196312	3918845	11/13/2018 11:03 am 11/16/2018 8:28 am	First Floor Room 215 Duplicate	1.0
3196313	3918846	11/13/2018 11:07 am 11/16/2018 8:29 am	First Floor Room 209	2.0
3196314	3918847	11/13/2018 11:09 am 11/16/2018 8:30 am	First Floor Room 264	0.9
3196315	3918848	11/13/2018 11:11 am 11/16/2018 8:31 am	First Floor Room 260	0.8

**Comment:** A copy of this report was e-mailed to PSI - VA.

Test Performed By: Nan Lin Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 11/17/2018 Date Logged: 11/17/2018 Date Analyzed: 11/17/2018 Date Reported: 11/28/2018

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 JFK HS  
1901 Randolph Road  
Silver Spring MD 20902

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3196316	3918849	11/13/2018 11:13 am	11/16/2018 8:32 am	First Floor Room 269	0.9
3196317	3918850	11/13/2018 11:16 am	11/16/2018 8:33 am	First Floor Room 272	0.8
3196318	3917862	11/13/2018 6:00 am	11/16/2018 4:00 pm	Office Blank	< 0.4
3196319	3918819	11/13/2018 6:00 am	11/16/2018 4:00 pm	Trip Blank	< 0.4
3196320	3918817	11/13/2018 6:27 am	11/16/2018 8:33 am	Field Blank	< 0.4
3196321	3918820	11/13/2018 6:27 am	11/16/2018 8:33 am	Field Blank	< 0.4

**Comment:** A copy of this report was e-mailed to PSI - VA.

Test Performed By: Nan Lin Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 11/17/2018 Date Logged: 11/17/2018 Date Analyzed: 11/17/2018 Date Reported: 11/28/2018

Report Reviewed By: 

Report Approved By: 

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NELAC NY 11769  
NRPP 103216 AL  
NRSB ARL0017

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey  
1901 Randolph Road  
Silver Spring MD 20902


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2393050	3881230	11/13/2018 9:05 am 11/16/2018 7:57 am	Floor First Room 179	1.0
2393051	3881250	11/13/2018 9:05 am 11/16/2018 7:58 am	Floor First Room 179	0.6

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

Distributed by: Intertek-PSI (VA)

Date Received: 11/17/2018 Date Logged: 11/17/2018 Date Analyzed: 11/19/2018 Date Reported: 12/17/2018

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

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NRPP 105011 AL  
NRSB ARL0007  
Ohio RL41

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

Laboratory Report for:

Property Tested:

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

MCPS Radon Survey  
4514 Taylorsville Road  
Dayton OH 45424

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

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

Test Performed By: Unknown

Distributed by: Intertek-PSI (VA)

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

Report Reviewed By: 

Report Approved By: 

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

---

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

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



## MCPS RADON TESTING

Executive Summary: John F. Kennedy High School

Date of Test Report:	11/28/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	5
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	<0.3
High Value:	3.3

### Project Status:

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



November 28, 2016

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

Re: **Radon Testing Services**  
KCI Job # 12146341.60

Location: John F. Kennedy High School  
1901 Randolph Road  
Silver Spring, Maryland 20902

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 John F. Kennedy High School, located at 1901 Randolph Road in Silver Spring, Maryland 20902 (subject site).

**Scope of Services:**

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

KCI visited the site on November 15, 2016 and deployed seven (7) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

As a quality control measure, KCI included duplicate samples, field blanks, lab transit blanks, and office blanks in accordance with AARST recommendations. In addition, KCI submitted three (3) test kits to Bowser-Morner, Inc. as spike samples. The spiked tests were exposed to a known radon concentration by Bowser-Morner prior to being returned to the laboratory for analysis.

KCI returned to the site on November 18, 2016 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.



**Evaluation of Testing Conditions:**

These tests represent:

- Post-mitigation testing for radon mitigation systems installed recently

These tests were conducted to:

- Confirm the success of the mitigation system(s)

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the 30s and high temperatures ranged from 60-70. Maximum sustained winds ranged from 8-14 miles per hour. Average humidity was around 65%. No precipitation was recorded during the testing period.

**Results:**

The results of the radon test analysis indicated the following:

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

Notes:  
D- Duplicate sample

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

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

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

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

Sincerely,



James M. 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>John Kennedy High School</b>		
<b>Test Period: 11/15/16-11/18/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7826510	167	0.9
7826511	190	3.3
7826507	AUX	0.8
7826508	AUX	0.6
7826509	BOYS	0.6
7826512	OFFICE NEXT 149B	< 0.3

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>John Kennedy High School</b>		
<b>Test Period: 11/15/16-11/18/16</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7826506	D (AUX)	0.7

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

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November 22, 2016

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

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Radon test result report for:

**KENNEDY HIGH SCHOOL  
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>
7826510	167	2016-11-15 @ 10:00 am	2016-11-18 @ 9:00 am	0.9 ± 0.3	2016-11-21
7826511	190	2016-11-15 @ 10:00 am	2016-11-18 @ 9:00 am	3.3 ± 0.4	2016-11-21
7826506	AUX	2016-11-15 @ 10:00 am	2016-11-18 @ 9:00 am	0.7 ± 0.3	2016-11-21
7826507	AUX	2016-11-15 @ 10:00 am	2016-11-18 @ 9:00 am	0.8 ± 0.3	2016-11-21
7826508	AUX	2016-11-15 @ 10:00 am	2016-11-18 @ 9:00 am	0.6 ± 0.3	2016-11-21
7826509	BOYS	2016-11-15 @ 10:00 am	2016-11-18 @ 9:00 am	0.6 ± 0.3	2016-11-21
7826512	OFFICE NEXT 149B	2016-11-15 @ 10:00 am	2016-11-18 @ 9:00 am	< 0.3	2016-11-21

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



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November 22, 2016

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

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Radon test result report for:

**MCPS Radon**

**Phase 19 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>
7802909	OFFICE	2016-11-11 @ 10:00 am	2016-11-14 @ 10:00 am	< 0.3	2016-11-16
7802910	TRANSIT	2016-11-11 @ 10:00 am	2016-11-14 @ 10:00 am	< 0.3	2016-11-16

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

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November 22, 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>
7802912	1	2016-11-11 @ 10:00 am	2016-11-14 @ 10:00 am	23.5 ± 0.8	2016-11-16
7802913	2	2016-11-11 @ 10:00 am	2016-11-14 @ 10:00 am	23.0 ± 0.8	2016-11-16
7802911	3	2016-11-11 @ 10:00 am	2016-11-14 @ 10:00 am	25.6 ± 0.9	2016-11-16

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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 177376

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

Date Start: 11/11/16 Date Stop: 11/14/16 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0958 Time Stop: 0958 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

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

7802911 thro 7802913

GS Middle

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

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

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

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

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

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

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



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 19

Names of Schools:

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

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

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



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 19

Names of Schools:

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

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

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



### MCPS RADON TESTING

Executive Summary: John F. Kennedy High School

Date of Test Report:	10/19/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	17
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	1.7

Project Status:

Post remediation testing completed; Re-test needed for Gym 2 (doors open).



October 19, 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: John F. Kennedy High School  
1901 Randolph Road  
Silver Spring, Maryland 20902

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 John F. Kennedy High School, located at 1901 Randolph Road in Silver Spring, Maryland 20902 (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 26, 2016 and deployed twenty-two (22) 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 29, 2016 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

### **Evaluation of Testing Conditions:**

These tests represent:

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

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

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

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

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

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

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

### **Results:**

The results of the radon test analysis indicated the following:

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

Notes:

D- Duplicate sample

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

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



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

Sincerely,



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

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

# ATTACHMENT A

## Floor Plan With Test Locations

# ATTACHMENT B

## Radon Test Summary Spreadsheet

<b>Radon Testing Results</b>		
<b>John F. Kennedy High School</b>		
<b>Test Period: 09/26/16-09/29/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7756818	119	< 0.3
7769850	122	< 0.3
7769894	124	1.0
7769851	126	1.2
7769833	129	1.4
7756823	131	1.1
7769876	147	< 0.3
7769877	149	< 0.3
7769823	165	1.4
7769835	167	1.0
7769839	149B	< 0.3
7769830	149E	< 0.3
7769845	165C	1.7
7769840	* 167 (Tampered)	0.8
7769834	* Gym 2 (Open Door)	1.0
7769888	* Gym 2 (Tampered and Open Door)	0.7
7769892	* Boys Locker Rm (Tampered)	< 0.3
7756838	OFC	< 0.3
7756839	Choral OFC 165B	1.7

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>John F. Kennedy High School</b>		
<b>Test Period: 09/26/16-09/29/16</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7769841	D (147)	< 0.3
7714168	D (Boys Locker Rm)	< 0.3
7769893	FB (Boys Locker Rm)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

Radon test result report for:

**KENNEDY HIGH SCHOOL  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7756818	119	2016-09-26 @ 5:00 pm	2016-09-29 @ 2:00 pm	< 0.3	2016-10-03
7769850	122	2016-09-26 @ 5:00 pm	2016-09-29 @ 2:00 pm	< 0.3	2016-10-03
7769894	124	2016-09-26 @ 5:00 pm	2016-09-29 @ 2:00 pm	1.0 ± 0.3	2016-10-03
7769851	126	2016-09-26 @ 5:00 pm	2016-09-29 @ 2:00 pm	1.2 ± 0.3	2016-10-03
7769833	129	2016-09-26 @ 5:00 pm	2016-09-29 @ 1:00 pm	1.4 ± 0.3	2016-10-03
7756823	131	2016-09-26 @ 5:00 pm	2016-09-29 @ 2:00 pm	1.1 ± 0.3	2016-10-03
7769876	147	2016-09-26 @ 5:00 pm	2016-09-29 @ 2:00 pm	< 0.3	2016-10-03
7769841	147	2016-09-26 @ 5:00 pm	2016-09-29 @ 2:00 pm	< 0.3	2016-10-03
7769877	149	2016-09-26 @ 5:00 pm	2016-09-29 @ 2:00 pm	< 0.3	2016-10-03
7769839	149B	2016-09-26 @ 5:00 pm	2016-09-29 @ 2:00 pm	< 0.3	2016-10-03
7769830	149E	2016-09-26 @ 5:00 pm	2016-09-29 @ 2:00 pm	< 0.3	2016-10-03
7769823	165	2016-09-26 @ 5:00 pm	2016-09-29 @ 2:00 pm	1.4 ± 0.3	2016-10-03
7769845	165C	2016-09-26 @ 5:00 pm	2016-09-29 @ 2:00 pm	1.7 ± 0.4	2016-10-03
7769840	167	2016-09-26 @ 5:00 pm	2016-09-29 @ 2:00 pm	0.8 ± 0.3	2016-10-03
7769835	167	2016-09-26 @ 5:00 pm	2016-09-29 @ 2:00 pm	1.0 ± 0.3	2016-10-03
7769888	GYM2	2016-09-26 @ 6:00 pm	2016-09-29 @ 2:00 pm	0.7 ± 0.3	2016-10-03
7769834	GYM2	2016-09-26 @ 6:00 pm	2016-09-29 @ 2:00 pm	1.0 ± 0.3	2016-10-03
7714168	BOYSLKRM	2016-09-26 @ 6:00 pm	2016-09-29 @ 2:00 pm	< 0.3	2016-10-03
7769892	BOYSLKRM	2016-09-26 @ 6:00 pm	2016-09-29 @ 2:00 pm	< 0.3	2016-10-03
7769893	BOYSLKRM	2016-09-26 @ 6:00 pm	2016-09-29 @ 2:00 pm	< 0.3	2016-10-03
7756838	OFC	2016-09-26 @ 5:00 pm	2016-09-29 @ 2:00 pm	< 0.3	2016-10-03
7756839	CHRLOFC165B	2016-09-26 @ 5:00 pm	2016-09-29 @ 2:00 pm	1.7 ± 0.4	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
2. Walt Whitman High School
3. Burning Tree Elementary School
4. Ashburton Elementary School
5. Bethesda Maintenance
6. Bethesda Transportation
7. Herbert Hoover Middle School
8. Cold Spring Elementary School
9. Garret Park Elementary School
10. Rock View Elementary School
11. Francis Scott Key Middle School
12. Montgomery Blair High School
13. Stephen Knolls School
14. Lourie Center
15. Shriver Elementary School
16. Viers Mill Elementary School
17. Highland Elementary School
18. Newport Middle School
19. Albert Einstein High School
20. Sligo Middle School
21. East Silver Spring Elementary School
22. Oak View Elementary School
23. Roscoe Nix Elementary School
24. Northwood High School
25. Springbrook High School
26. John F. Kennedy High School

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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 – FOLLOW-UP JOHN F KENNEDY HIGH SCHOOL

1901 Randolph Rd, Silver Spring, Maryland 20902

## EXECUTIVE SUMMARY

Date of Test Report:	3/18/16 Follow-Up
Round of Testing:	Initial <span style="border: 1px solid red; border-radius: 50%; padding: 2px;">Follow-up</span> Post Remediation
# Rooms Tested	12
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	<0.3
High Value:	3.3
Confirmed Rooms $\geq$ 4.0 pCi/L US EPA Action Level	2

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

Room	Result (pCi/L) 1/29/16 Initial	Result (pCi/L) 3/18/16 Follow-Up	Average Result (pCi/L)
149E	8.5	1.0	4.8
165	6.8	Not sampled	6.8
124	5.8	1.0	3.4
165	5.4	3.3	4.4
165C	4.8	2.8	3.8
126	4.4	0.9	2.7
165B	4.0	3.1	3.6
112	0.9 Tampered	1.1	1.0
163	--- Missing	1.5	1.5
190	--- Missing	3.1	3.1
Cafeteria	--- Missing	<0.3	<0.3
Cafeteria	--- Missing	<0.3	<0.3
Cafeteria	--- Missing	Not sampled	---
Gym	--- Missing	1.0	1.0
Gym2	--- Missing	<0.3	<0.3
Gym2	--- Missing	<0.3	<0.3



### MCPS RADON TESTING

Executive Summary: John F. Kennedy High School

Date of Test Report:	3/18/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	12
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	3.3

#### Project Status:

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



March 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 # 12146341.29

Location: John F. Kennedy High School  
1901 Randolph Road  
Silver Spring, Maryland 20902

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 John F. Kennedy High School, located at 1901 Randolph Road in Silver Spring, Maryland 20902 (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 nineteen (19) 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>	none	n/a
<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>John F. Kennedy High School</b>		
<b>Test Period: 02/22/16-02/25/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7731455	112	1.1
7731456	124	1.0
7731446	126	0.9
7731453	163	1.5
7731454	163	1.4
7731460	165	3.3
7731461	190	3.1
7731457	149E	1.0
7731437	165B	3.1
7731439	165C	2.8
7731443	CAFE	< 0.3
7731449	CAFE	< 0.3
7731458	GYM	0.9
7731450	GYM	1.0
7731440	GYM2	< 0.3
7731452	GYM2	< 0.3

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>John F. Kennedy High School</b>		
<b>Test Period: 02/22/16-02/25/16</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7731442	D (163)	1.5
7731462	D (190)	2.5
7731465	FB (149E)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results



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

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7731455	112	2016-02-22 @ 10:00 am	2016-02-25 @ 9:00 am	1.1 ± 0.3	2016-02-29
7731456	124	2016-02-22 @ 10:00 am	2016-02-25 @ 9:00 am	1.0 ± 0.3	2016-02-29
7731446	126	2016-02-22 @ 10:00 am	2016-02-25 @ 9:00 am	0.9 ± 0.3	2016-02-29
7731457	149E	2016-02-22 @ 10:00 am	2016-02-25 @ 9:00 am	1.0 ± 0.3	2016-02-29
7731465	149E	2016-02-22 @ 10:00 am	2016-02-25 @ 9:00 am	< 0.3	2016-02-29
7731442	163	2016-02-22 @ 10:00 am	2016-02-25 @ 9:00 am	1.5 ± 0.3	2016-02-29
7731453	163	2016-02-22 @ 10:00 am	2016-02-25 @ 9:00 am	1.5 ± 0.3	2016-02-29
7731454	163	2016-02-22 @ 10:00 am	2016-02-25 @ 9:00 am	1.4 ± 0.3	2016-02-29
7731460	165	2016-02-22 @ 10:00 am	2016-02-25 @ 9:00 am	3.3 ± 0.4	2016-02-29
7731437	165B	2016-02-22 @ 10:00 am	2016-02-25 @ 9:00 am	3.1 ± 0.4	2016-02-29
7731439	165C	2016-02-22 @ 10:00 am	2016-02-25 @ 9:00 am	2.8 ± 0.4	2016-02-29
7731461	190	2016-02-22 @ 11:00 am	2016-02-25 @ 9:00 am	3.1 ± 0.4	2016-02-29
7731462	190	2016-02-22 @ 11:00 am	2016-02-25 @ 9:00 am	2.5 ± 0.4	2016-02-29
7731443	CAFE	2016-02-22 @ 11:00 am	2016-02-25 @ 9:00 am	< 0.3	2016-02-29
7731449	CAFE	2016-02-22 @ 11:00 am	2016-02-25 @ 9:00 am	< 0.3	2016-02-29
7731450	GYM	2016-02-22 @ 11:00 am	2016-02-25 @ 9:00 am	1.0 ± 0.3	2016-02-29
7731458	GYM	2016-02-22 @ 11:00 am	2016-02-25 @ 9:00 am	0.9 ± 0.3	2016-02-29
7731440	GYM2	2016-02-22 @ 11:00 am	2016-02-25 @ 9:00 am	< 0.3	2016-02-29
7731452	GYM2	2016-02-22 @ 11:00 am	2016-02-25 @ 9:00 am	< 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**

---

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

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

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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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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  $\mu$ R/h Elevation = 820 ft



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 9

Name of Schools:

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

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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: John F. Kennedy High School

Date of Test Report:	1/29/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	117
# Rooms $\geq$ 4.0 pCi/L:	7
Low Value:	< 0.3
High Value:	8.5

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

Room 149 E (8.5 pCi/L); Room 165 (6.8 pCi/L); Room 124 (5.8 pCi/L); Room 165 (5.4 pCi/L);  
Room 165 C (4.8 pCi/L); Room 126 (4.4 pCi/L); Room 165 B (4.0 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 29, 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 # 12146341.22

Location: John F. Kennedy High School  
1901 Randolph Road  
Silver Spring, Maryland 20902

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 John F. Kennedy High School, located at 1901 Randolph Road in Silver Spring, Maryland 20902 (subject site).

**Scope of Services:**

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

KCI visited the site on January 4, 2016 and deployed one hundred thirty-five (135) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

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

Bridge Road, Mills River, North Carolina.

**Evaluation of Testing Conditions:**

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

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

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

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

**Results:**

The results of the radon test analysis indicated the following:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result (pCi/L)</b>
<b><math>\geq 4.0</math> pCi/L</b>	149E	8.5
	165	6.8
	124	5.8
	165	5.0, 5.4 (D)
	165 C	4.8
	126	4.4
	165 B	4.0
<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>John F. Kennedy HS</b>		
<b>Test Period: 01/04/16-01/07/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7719787	101	1.5
7719800	103	1
7719789	104	2.6
7719795	105	1.3
7719763	107	0.7
7719743	109	2
7719766	110	0.9
7719755	111	1.4
7719750	113	1
7719711	114	1.1
7719762	116	0.8
7719759	118	0.9
7719761	119	1.2
7719751	120	1.1
7719791	121	0.8
7719709	122	1.1
7719740	123	2
7719760	124	5.8
7719752	125	2
7719702	126	4.4
7719747	129	2
7719756	131	1.3
7719715	132	1.5
7719712	133	1.7
7719722	134	1.4
7719714	136	2.2
7719717	136	0.5
7719713	139	1.9
7719719	141	0.7
7719723	143	0.6
7719724	144	1.1
7719721	145	< 0.3
7719729	147	1.5
7719731	147	1.7
7719732	149	1.8
7719737	149	1.9
7719730	151	0.7
7719798	153	0.8
7719792	155	1.7
7719735	156	< 0.3
7719856	157	0.8
7719843	159	0.6
7719834	160	< 0.3
7719839	161	< 0.3
7719835	162	< 0.3
7719812	163	1.1

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>John F. Kennedy HS</b>		
<b>Test Period: 01/04/16-01/07/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7719810	163	0.7
7719840	164	0.8
7719846	165	6.8
7719842	165	5
7719855	167	1.8
7719820	168	< 0.3
7719824	182	1.2
7719821	184	0.8
7719807	188	< 0.3
7719803	190	3.2
7719823	201	< 0.3
7719819	205	< 0.3
7719809	209	1.2
7719826	224	0.7
7719813	227	< 0.3
7719811	240	1.1
7719815	241	< 0.3
7719814	250	0.7
7719851	260	0.5
7719830	270	0.6
7719768	100 B	0.8
7719772	100 F	0.7
7719773	100 I	1.4
7719774	100 K	1.1
7719776	100 L	1
7719777	100 M	0.6
7719794	100 Q	2.2
7719753	101 A	2.4
7719757	101 C	2
7719754	101 D	2.1
7719788	104 A	1.4
7719781	104 B	1.5
7719779	104 C	1.4
7719782	104 D	2
7719785	104 G	2.2
7719793	104 H	1.6
7719770	104 J	1.7
7719797	104 K	1.8
7719769	108 A	0.7
7719744	108 B	0.6
7719742	108 C	0.7
7719790	108 C	0.6
7719786	111B	2.8
7719783	* 112 (Tampered)	0.9
7719758	121 C	1.3
7719746	122 B	1.2
7719710	139 B	< 0.3
7719733	149 A	1.1
7719734	149 E	8.5
7719816	* 163 (Missing)	0

Table Note:

\* Missing or Compromised Sample



<b>Radon Testing Results</b>		
<b>John F. Kennedy HS</b>		
<b>Test Period: 01/04/16-01/07/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7719844	165 B	4
7719845	165 C	4.8
7719828	170 A	< 0.3
7719817	170 B	< 0.3
7719725	176A	0.8
7719805	* 190 (Missing)	0
7719799	ACADAMY	1.3
7719771	ASST PRIN	< 0.3
7719778	ASST PRIN	1.2
7719784	BENITEZ	1.1
7719775	BLDG SERV	1.2
7719707	* CAFETERIA (Missing)	0
7719720	* CAFETERIA (Missing)	0
7719727	* CAFETERIA (Missing)	0
7719806	GYM	1
7719847	GYM	1.6
7719850	* GYM (Missing)	0
7719801	* GYM2 (Missing)	0
7719853	* GYM2 (Missing)	0
7719780	MAIN OFFICE	1.2
7720650	OFFICE	< 0.3

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>John F. Kennedy HS</b>		
<b>Test Period: 01/04/16-01/07/16</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7719749	D (104)	1.9
7719767	D (123)	2
7719736	D (151)	0.7
7719833	D (159)	0.8
7719818	D (163)	0.5
7719825	D (163)	< 0.3
7719849	D (165)	5.4
7719841	D (167)	2
7719822	D (168)	0.8
7719718	D (CAFETERIA)	< 0.3
7719852	* D (GYM2:Missing)	0
7719802	* D (GYM2:Tampered)	1
7719745	FB (104)	< 0.3
7719748	FB (123)	< 0.3
7719804	FB (190)	< 0.3
7719716	FB (CAFETERIA)	< 0.3
7719848	FB (GYM)	< 0.3
7720647	OB (0)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

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

Radon test result report for:  
**KENNEDY JOHN F. HS**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7720647	0	2016-01-04 @ 3:00 pm	2016-01-07 @ 1:00 pm	< 0.3	2016-01-11
7719768	100 B	2016-01-04 @ 8:00 am	2016-01-07 @ 8:00 am	0.8 ± 0.3	2016-01-11
7719772	100 F	2016-01-04 @ 8:00 am	2016-01-07 @ 8:00 am	0.7 ± 0.3	2016-01-11
7719773	100 I	2016-01-04 @ 8:00 am	2016-01-07 @ 8:00 am	1.4 ± 0.4	2016-01-12
7719774	100 K	2016-01-04 @ 8:00 am	2016-01-07 @ 8:00 am	1.1 ± 0.3	2016-01-11
7719776	100 L	2016-01-04 @ 8:00 am	2016-01-07 @ 8:00 am	1.0 ± 0.4	2016-01-12
7719777	100 M	2016-01-04 @ 9:00 am	2016-01-07 @ 8:00 am	0.6 ± 0.3	2016-01-11
7719794	100 Q	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.2 ± 0.4	2016-01-11
7719787	101	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.5 ± 0.3	2016-01-11
7719753	101 A	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.4 ± 0.4	2016-01-11
7719757	101 C	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.0 ± 0.4	2016-01-11
7719754	101 D	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.1 ± 0.4	2016-01-11
7719800	103	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.0 ± 0.3	2016-01-11
7719789	104	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.6 ± 0.4	2016-01-11
7719745	104	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719749	104	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.9 ± 0.4	2016-01-12
7719788	104 A	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.4 ± 0.3	2016-01-11
7719781	104 B	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.5 ± 0.3	2016-01-11
7719779	104 C	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.4 ± 0.3	2016-01-11
7719782	104 D	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.0 ± 0.4	2016-01-12
7719785	104 G	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.2 ± 0.4	2016-01-11
7719793	104 H	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.6 ± 0.4	2016-01-11
7719770	104 J	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.7 ± 0.4	2016-01-11
7719797	104 K	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.8 ± 0.4	2016-01-11
7719795	105	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.3 ± 0.4	2016-01-11
7719763	107	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-11
7719769	108 A	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-11
7719744	108 B	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-11
7719742	108 C	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-11
7719790	108 C	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-11
7719743	109	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.0 ± 0.4	2016-01-11
7719766	110	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.9 ± 0.3	2016-01-11
7719755	111	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.4 ± 0.3	2016-01-11
7719786	111B	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.8 ± 0.4	2016-01-11
7719783	112	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.9 ± 0.4	2016-01-12
7719750	113	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.0 ± 0.3	2016-01-11
7719711	114	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.1 ± 0.3	2016-01-11

January 25, 2016  
**LABORATORY ANALYSIS REPORT**

Radon test result report for:  
**KENNEDY JOHN F. HS**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7719762	116	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-12
7719759	118	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.9 ± 0.3	2016-01-11
7719761	119	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.2 ± 0.3	2016-01-11
7719751	120	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.1 ± 0.3	2016-01-11
7719758	121 C	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.3 ± 0.4	2016-01-12
7719709	122	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.1 ± 0.4	2016-01-12
7719746	122 B	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.2 ± 0.4	2016-01-12
7719767	123	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.0 ± 0.4	2016-01-11
7719740	123	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.0 ± 0.4	2016-01-11
7719748	123	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719760	124	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	5.8 ± 0.6	2016-01-12
7719752	125	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.0 ± 0.4	2016-01-11
7719702	126	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	4.4 ± 0.6	2016-01-12
7719747	129	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.0 ± 0.4	2016-01-11
7719756	131	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.3 ± 0.4	2016-01-12
7719715	132	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.5 ± 0.3	2016-01-11
7719712	133	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.7 ± 0.4	2016-01-12
7719722	134	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.4 ± 0.4	2016-01-12
7719717	136	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.5 ± 0.3	2016-01-11
7719714	136	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.2 ± 0.4	2016-01-12
7719713	139	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.9 ± 0.4	2016-01-12
7719710	139 B	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719719	141	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-11
7719723	143	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-12
7719724	144	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.1 ± 0.4	2016-01-12
7719721	145	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719729	147	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.5 ± 0.4	2016-01-11
7719731	147	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.7 ± 0.4	2016-01-12
7719732	149	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.8 ± 0.4	2016-01-11
7719737	149	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.9 ± 0.4	2016-01-11
7719733	149 A	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	1.1 ± 0.4	2016-01-12
7719734	149 E	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	8.5 ± 0.7	2016-01-12
7719730	151	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	0.7 ± 0.3	2016-01-11
7719736	151	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	0.7 ± 0.3	2016-01-11
7719798	153	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	0.8 ± 0.4	2016-01-12
7719792	155	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	1.7 ± 0.4	2016-01-11
7719735	156	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11

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

Radon test result report for:  
**KENNEDY JOHN F. HS**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7719856	157	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	0.8 ± 0.3	2016-01-11
7719833	159	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	0.8 ± 0.3	2016-01-11
7719843	159	2016-01-04 @ 10:00 am	2016-01-07 @ 11:00 am	0.6 ± 0.3	2016-01-11
7719834	160	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7719839	161	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7719835	162	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7719816	163	@	@		
7719810	163	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	0.7 ± 0.3	2016-01-11
7719812	163	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	1.1 ± 0.3	2016-01-11
7719818	163	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	0.5 ± 0.3	2016-01-11
7719825	163	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7719840	164	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	0.8 ± 0.3	2016-01-11
7719842	165	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	5.0 ± 0.5	2016-01-11
7719846	165	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	6.8 ± 0.6	2016-01-11
7719849	165	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	5.4 ± 0.6	2016-01-12
7719844	165 B	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	4.0 ± 0.5	2016-01-12
7719845	165 C	2016-01-04 @ 10:00 am	2016-01-07 @ 11:00 am	4.8 ± 0.6	2016-01-12
7719841	167	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	2.0 ± 0.4	2016-01-11
7719855	167	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	1.8 ± 0.4	2016-01-12
7719820	168	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7719822	168	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	0.8 ± 0.3	2016-01-12
7719828	170 A	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7719817	170 B	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7719725	176A	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-11
7719824	182	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	1.2 ± 0.4	2016-01-12
7719821	184	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	0.8 ± 0.3	2016-01-11
7719807	188	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7719805	190	@	@		
7719803	190	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	3.2 ± 0.4	2016-01-11
7719804	190	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7719823	201	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7719819	205	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7719809	209	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	1.2 ± 0.4	2016-01-12
7719826	224	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	0.7 ± 0.3	2016-01-12
7719813	227	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7719811	240	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	1.1 ± 0.3	2016-01-11
7719815	241	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11

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

Radon test result report for:  
**KENNEDY JOHN F. HS**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7719814	250	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	0.7 ± 0.3	2016-01-12
7719851	260	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	0.5 ± 0.3	2016-01-12
7719830	270	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	0.6 ± 0.3	2016-01-11
7719799	ACADAMY	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.3 ± 0.4	2016-01-11
7719771	ASST PRIN	2016-01-04 @ 8:00 am	2016-01-07 @ 8:00 am	< 0.3	2016-01-11
7719778	ASST PRIN	2016-01-04 @ 9:00 am	2016-01-07 @ 8:00 am	1.2 ± 0.4	2016-01-12
7719784	BENITEZ	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.1 ± 0.4	2016-01-12
7719775	BLDG SERV	2016-01-04 @ 9:00 am	2016-01-07 @ 8:00 am	1.2 ± 0.4	2016-01-12
7719707	CAFATERIA	@	@		
7719720	CAFATERIA	@	@		
7719727	CAFATERIA	@	@		
7719716	CAFATERIA	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719718	CAFATERIA	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719850	GYM	@	@		
7719806	GYM	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	1.0 ± 0.3	2016-01-11
7719848	GYM	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7719847	GYM	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	1.6 ± 0.4	2016-01-12
7719801	GYM2	@	@		
7719852	GYM2	@	@		
7719853	GYM2	@	@		
7719802	GYM2	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	1.0 ± 0.3	2016-01-11
7719780	MAIN OFFICE	2016-01-04 @ 8:00 am	2016-01-07 @ 8:00 am	1.2 ± 0.4	2016-01-12
7720650	OFFICE	2016-01-04 @ 3:00 pm	2016-01-07 @ 1:00 pm	< 0.3	2016-01-11

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

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Radon test result report for:  
**JOHN KENNEDY**  
**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>
7719791	121	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.4	2016-01-12

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



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 IV

Name of Schools:

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

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

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

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