



**MCPS RADON TESTING – EXECUTIVE SUMMARY**

Site Name	Longview School
Date of Test Report	1/25/2023
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	26
# Rooms ≥ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.5 pCi/L

Project Status:

1. 5-Year Re-Testing Completed.



January 25, 2023

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

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

Location: Longview School  
13900 Bromfield Road  
Germantown, MD 20874

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 Longview School located at 13900 Bromfield Rd. Germantown, MD 20874 (subject site).

**Scope of Services:**

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

KCI visited the site on December 19, 2022 and deployed twenty-nine (29) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

KCI returned to the site on December 22, 2022 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Accustar Labs - MA for analysis by gamma-ray spectroscopy.

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

**Evaluation of Testing Conditions:**

These tests represent:

- Follow up to 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 23°F to 55°F. Maximum sustained winds ranged from 0-18 miles per hour. Average humidity was around 75% with 0.0 inches of precipitation (rain) was recorded during testing period.

**Results:**

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

The results of the radon test analysis indicated the following:

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

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

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

Sincerely,



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

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

# ATTACHMENT A

## Floor Plan With Test Locations

# ATTACHMENT B

## Radon Test Summary Spreadsheet

**Table Notes:**

AC- Activated Charcoal

ACI- Air Check, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

OC- Quality Control

Table 1- Radon Testing Results		
Longview School		
Test Period: 12/19/2022 - 12/22/2022		
Kit Number	Room / Area	Result
11287044	134	< 0.3
11287013	136	< 0.3
11287043	137	< 0.3
11287006	138	1.5
11287028	140	< 0.3
11287037	141	< 0.3
11287036	143	< 0.3
11287026	144	< 0.3
11287014	145	< 0.3
11633396	147	< 0.3
11287005	149	< 0.3
11633395	151	< 0.3
11287007	152	< 0.3
11287021	153	< 0.3
11287027	153	< 0.3
11287045	154	< 0.3
11287004	100F	< 0.3
11287003	100G	< 0.3
11287030	141C	< 0.3
11287022	145C	< 0.3
11287029	145C	< 0.3
11287035	145C	< 0.3
11633397	147C	< 0.3
11287012	GYM	< 0.3
11287018	GYM	< 0.3
11287019	GYM OFFICE	< 0.3
11287011	MAIN OFFICE	< 0.3
11287010	POOL	< 0.3
11287020	POOL OFFICE	< 0.3



Table 2- Radon Testing Results			
Longview School			
Test Period: 12/19/22 - 12/22/22			
Kit Number	QC Type	Room / Area	Result
11287027	D	153	< 0.3
11287022	D	145C	< 0.3
11287029	FB	145C	< 0.3
11288518	OB	OFFICE BLANK	< 0.3
11287685	TB	TRAVEL BLANK	< 0.3



# ATTACHMENT C

## Laboratory Analytical Results

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11287004	100F	2022-12-19 @ 2:00 pm	2022-12-22 @ 11:00 am	< 0.3	2022-12-28
11287003	100G	2022-12-19 @ 2:00 pm	2022-12-22 @ 11:00 am	< 0.3	2022-12-28
11287044	134	2022-12-19 @ 3:00 pm	2022-12-22 @ 12:00 pm	< 0.3	2022-12-28
11287013	136	2022-12-19 @ 3:00 pm	2022-12-22 @ 11:00 am	< 0.3	2022-12-28
11287043	137	2022-12-19 @ 3:00 pm	2022-12-22 @ 12:00 pm	< 0.3	2022-12-28
11287006	138	2022-12-19 @ 3:00 pm	2022-12-22 @ 11:00 am	1.5 ± 0.6	2022-12-28
11287028	140	2022-12-19 @ 3:00 pm	2022-12-22 @ 11:00 am	< 0.3	2022-12-28
11287037	141	2022-12-19 @ 3:00 pm	2022-12-22 @ 12:00 pm	< 0.3	2022-12-28
11287030	141C	2022-12-19 @ 3:00 pm	2022-12-22 @ 12:00 pm	< 0.3	2022-12-28
11287036	143	2022-12-19 @ 3:00 pm	2022-12-22 @ 12:00 pm	< 0.3	2022-12-28
11287026	144	2022-12-19 @ 2:00 pm	2022-12-22 @ 11:00 am	< 0.3	2022-12-28
11287014	145	2022-12-19 @ 3:00 pm	2022-12-22 @ 11:00 am	< 0.3	2022-12-28
11287022	145C	2022-12-19 @ 3:00 pm	2022-12-22 @ 11:00 am	< 0.3	2022-12-28
11287035	145C	2022-12-19 @ 3:00 pm	2022-12-22 @ 11:00 am	< 0.3	2022-12-28
11287029	145C	2022-12-19 @ 3:00 pm	2022-12-22 @ 11:00 am	< 0.3	2022-12-28
11633396	147	2022-12-19 @ 2:00 pm	2022-12-22 @ 11:00 am	< 0.3	2022-12-28
11633397	147C	2022-12-19 @ 2:00 pm	2022-12-22 @ 11:00 am	< 0.3	2022-12-28
11287005	149	2022-12-19 @ 2:00 pm	2022-12-22 @ 11:00 am	< 0.3	2022-12-28
11633395	151	2022-12-19 @ 2:00 pm	2022-12-22 @ 11:00 am	< 0.3	2022-12-28
11287007	152	2022-12-19 @ 3:00 pm	2022-12-22 @ 12:00 pm	< 0.3	2022-12-28
11287021	153	2022-12-19 @ 2:00 pm	2022-12-22 @ 11:00 am	< 0.3	2022-12-28
11287027	153	2022-12-19 @ 2:00 pm	2022-12-22 @ 11:00 am	< 0.3	2022-12-28
11287045	154	2022-12-19 @ 3:00 pm	2022-12-22 @ 12:00 pm	< 0.3	2022-12-28
11287018	GYM	2022-12-19 @ 2:00 pm	2022-12-22 @ 11:00 am	< 0.3	2022-12-28
11287012	GYM	2022-12-19 @ 2:00 pm	2022-12-22 @ 11:00 am	< 0.3	2022-12-28
11287019	GYM OFFICE	2022-12-19 @ 2:00 pm	2022-12-22 @ 11:00 am	< 0.3	2022-12-28
11287011	MAIN OFFICE	2022-12-19 @ 2:00 pm	2022-12-22 @ 11:00 am	< 0.3	2022-12-28
11287010	POOL	2022-12-19 @ 2:00 pm	2022-12-22 @ 11:00 am	< 0.3	2022-12-28
11287020	POOL OFFICE	2022-12-19 @ 2:00 pm	2022-12-22 @ 11:00 am	< 0.3	2022-12-28

# EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KC1 TECHNOLOGIES, INC Job Number 208343

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

Date Start: 12/24/22 Date Stop: 12/27/22 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0810 Time Stop: 0810 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

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

11285109, 11285110, 11285101

THRU 11285103

BY LEFT

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

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

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

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

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

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

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

---

December 29, 2022

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

---

Radon test result report for:

**OFFICE**

**MAIN**

---

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

---

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



### Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Week 3 December Schools

Name of Schools:

1. Clopper Mill ES
2. Cold Spring ES
3. Fox Chapel ES
4. Gaithersburg HS
5. Longview School
6. North Lake Center
7. Ronald McNair ES
8. Rosemont ES
9. S. Christa McAuliffe ES
10. Spark M. Matsunaga ES
11. William B. Gibbs, JR. ES

---

	Date	Initials
Radon Test Kits Deployed	12/19/2022	BMM
Radon Test Kits Collected	12/22/2022	BMM
Radon Test Kits Shipped to Lab*	12/22/2022	BMM
Radon Test Kits Received by Lab*	12/28/2022	BMM

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



**MONTGOMERY COUNTY PUBLIC SCHOOLS  
RADON TESTING**

**Executive Summary:**

**Longview School**

13900 Bromfield Rd,  
Germantown, MD 20874

Date of Test Report:	2/3/2019
Round of Testing:	Initial Follow-up Post Remediation 2 Year Testing <b>5 Year Testing</b> HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested:	24
# of Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.4
High Value:	0.6

**Project Status**

**Initial testing complete:** No further action at this time.





February 3, 2019

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

Re: Radon Testing Services

Location: Longview School  
13900 Bromfield Road,  
Germantown, MD 20874

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 Rock Terrance High School, located at 13900 Bromfield Road, Germantown, MD 20874 (subject site).

**Scope of Services:**

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

PSI visited the site on December 04, 2018 and deployed thirty (32) activated charcoal (AC) radon test kits. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on December 07, 2018 to retrieve the radon sampling test kits. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

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



**Evaluation of Testing Conditions:**

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

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

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

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

**Results:**

The results of the radon test analysis indicated the following:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
$\geq 4.0$ pCi/L	None	NA
$\leq 4.0$ 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>Longview School</b>		
<b>Testing period: 12/04/18 - 12/07/18</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result (pCi/L)</b>
3928461	100	< 0.4
3923469	134	0.5
3924468	134	0.4
3926929	136	< 0.4
3928464	137	< 0.4
3926930	138	< 0.4
3926814	140	0.6
3925467	141	< 0.4
3926812	143	< 0.4
3926820	144	< 0.4
3926926	145	< 0.4
3926927	147	< 0.4
3926815	149	< 0.4
3926816	151	< 0.4
3926813	152	< 0.4
3926818	153	< 0.4
3926819	153	< 0.4
3928431	154	< 0.4
3929463	157	< 0.4
3926466	137A	< 0.4
3926925	143A	0.5
3926928	147A	< 0.4
3926817	151A	< 0.4
3926995	157A	0.4
3926696	Pool	0.5
3926881	Pool Office	< 0.4

<b>Radon Testing Results</b>		
<b>Longview School</b>		
<b>Testing period: 12/04/18 - 12/07/18</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result (pCi/L)</b>
3922470	134 (D)	< 0.4
3927465	137 (D)	< 0.4
3928595	Field Blank	< 0.4
3928596	Field Blank	< 0.4
3928593	Office Blank	< 0.4
3928594	Transit Blank	< 0.4

**Table Notes:**

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control

# **ATTACHMENT C**

Laboratory Analytical Results



NELAC NY 11769  
NRPP 103216 AL  
NRSB ARL0017

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  
Longview School  
Germantown MD 20874

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2405395	3928465	12/04/2018 9:26 am	12/07/2018 8:18 am	Room 137	< 0.4
2405396	3926996	12/04/2018 10:14 am	12/07/2018 8:39 am	Pool	0.5
2405397	3928463	12/04/2018 9:22 am	12/07/2018 8:16 am	Room 157	< 0.4
2405398	3928467	12/04/2018 9:30 am	12/07/2018 8:20 am	Room 141	< 0.4
2405399	3928468	12/04/2018 9:32 am	12/07/2018 8:21 am	Room 134	0.4
2405400	3928466	12/04/2018 9:28 am	12/07/2018 8:19 am	Room 137A	< 0.4
2405401	3928470	12/04/2018 9:36 am	12/07/2018 8:23 am	Room 134	< 0.4
2405402	3928469	12/04/2018 9:36 am	12/07/2018 8:23 am	Room 134	0.5
2405403	3928461	12/04/2018 9:20 am	12/07/2018 8:15 am	Floor First Room 100	< 0.4
2405404	3928464	12/04/2018 9:26 am	12/07/2018 8:18 am	Floor First Room 137	< 0.4
2405405	3926812	12/04/2018 9:38 am	12/07/2018 8:24 am	Floor First Room 143	< 0.4

**Comment:** AMENDED REPORT on 1/31/2019 to add the beginning & ending dates & times for devices 3928465, 3926996, 3928463, 3928467, 3928468, 3928466, 3928470 and 3928469. A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018    Date Logged: 12/10/2018    Date Analyzed: 12/11/2018    Date Reported: 01/15/2019

Report Reviewed By: Michelle Cleveland

Report Approved By: Shawn Price

Shawn Price, Director of Laboratory Operations, AccuStar Labs

**Disclaimer:**

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

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

NELAC NY 11769  
NRPP 103216 AL  
NRSB ARL0017

EPA Method #402-R-92-004  
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  
Longview School  
Germantown MD 20874

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2405406	3926925	12/04/2018 9:40 am	12/07/2018 8:25 am	Floor First Room 143A	0.5
2405407	3926926	12/04/2018 9:42 am	12/07/2018 8:26 am	Floor First Room 145	< 0.4
2405408	3926927	12/04/2018 9:44 am	12/07/2018 8:27 am	Floor First Room 147	< 0.4
2405409	3926928	12/04/2018 9:46 am	12/07/2018 8:28 am	Floor First Room 147A	< 0.4
2405410	3926929	12/04/2018 9:48 am	12/07/2018 8:29 am	Floor First Room 136	< 0.4
2405411	3926930	12/04/2018 9:50 am	12/07/2018 8:30 am	Floor First Room 138	< 0.4
2405412	3926814	12/04/2018 9:52 am	12/07/2018 8:31 am	Floor First Room 140	0.6
2405413	3926815	12/04/2018 9:54 am	12/07/2018 8:32 am	Floor First Room 149	< 0.4
2405414	3926816	12/04/2018 9:56 am	12/07/2018 8:33 am	Floor First Room 151	< 0.4
2405415	3926817	12/04/2018 9:58 am	12/07/2018 8:34 am	Floor First Room 151A	< 0.4
2405416	3926818	12/04/2018 10:02 am	12/07/2018 8:36 am	Floor First Room 153	< 0.4

**Comment:** AMENDED REPORT on 1/31/2019 to add the beginning & ending dates & times for devices 3928465, 3926996, 3928463, 3928467, 3928468, 3928466, 3928470 and 3928469. A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018    Date Logged: 12/10/2018    Date Analyzed: 12/11/2018    Date Reported: 01/15/2019

Report Reviewed By: Michelle Cleveland

Report Approved By: Shawn Price

Shawn Price, Director of Laboratory Operations, AccuStar Labs

**Disclaimer:**

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

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

NELAC NY 11769  
NRPP 103216 AL  
NRSB ARL0017

EPA Method #402-R-92-004  
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  
Longview School  
Germantown MD 20874

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2405417	3926819	12/04/2018 10:02 am	12/07/2018 8:36 am	Floor First Room 153	< 0.4
2405418	3926820	12/04/2018 10:04 am	12/07/2018 8:37 am	Floor First Room 144	< 0.4
2405419	3926995	12/04/2018 10:06 am	12/07/2018 8:38 am	Floor First Room 157A	0.4
2405420	3926881	12/04/2018 10:15 am	12/07/2018 8:40 am	Floor First Room Pool Office	< 0.4
2405421	3926813	12/04/2018 10:18 am	12/07/2018 8:41 am	Floor First Room 152	< 0.4
2405422	3928431	12/04/2018 10:20 am	12/07/2018 8:42 am	Floor First Room 154	< 0.4
2405423	3928593	12/04/2018 6:00 am	12/07/2018 6:00 pm	Office Blank	< 0.4
2405424	3928594	12/04/2018 6:00 am	12/07/2018 6:00 pm	Transit Blank	< 0.4
2405425	3928595	12/04/2018 9:20 am	12/07/2018 8:42 am	Field Blank	< 0.4
2405426	3928596	12/04/2018 9:20 am	12/07/2018 8:42 am	Field Blank	< 0.4

**Comment:** AMENDED REPORT on 1/31/2019 to add the beginning & ending dates & times for devices 3928465, 3926996, 3928463, 3928467, 3928468, 3928466, 3928470 and 3928469. A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: 12/10/2018 Date Analyzed: 12/11/2018 Date Reported: 01/15/2019

Report Reviewed By: Michelle Cleveland

Report Approved By: Shawn Price

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.

NRPP 105011 AL  
NRSB ARL0007  
Ohio RL41

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

Laboratory Report for:

Property Tested:

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

MCPS Radon Survey  
4514 Taylorsville Road  
Dayton OH 45424

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

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

Test Performed By: Unknown

Distributed by: Intertek-PSI (VA)

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

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

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

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

# EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT Intertek - PSI

Job Number 187732

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

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

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

Time Start: 0947 Time Stop: 0947

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

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

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

3926831 thru 3926840

G2 left

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

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

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

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

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

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

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

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

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

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

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

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

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



## Chain of Custody

Project Name: MCPS Radon Survey 2018

Name of Schools:

1. Grosvenor Center (Luxmanor ES)
2. Montrose Center
3. Gibbs ES
4. Westbrook ES
5. Hadley Farms (Resnik ES)
6. Kingsview MS
7. Longview School
8. Lynnbrook Center
9. Magruder HS
10. McAuliffe ES
11. McNair ES
12. Mill Creek Towne ES
13. Martin Luther King MS
14. Montgomery Village MS
15. Great Seneca Creek ES
16. Quince Orchard HS
17. Redland MS
18. North Bethesda MS
19. Spark Matsunaga ES
20. Whetstone ES
21. Wood Acres ES

---

	Date	Initials
Radon Test Kits Deployed	12/04/2018	ML
Radon Test Kits Sampled	12/07/2018	ML
Radon Test Kits Shipped to Lab*	12/07/2018	ML
Radon Test Kits Received by Lab*	12/08/2018; 12/09/2018	ML

\*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: Longview School

Date of Test Report:	10/19/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	9
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	0.7

#### Project Status:

Follow-up testing after HVAC update completed; no further action at this time.



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: Longview School  
13900 Bromfield Road  
Germantown, MD 20874

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 Longview School, located at 13900 Bromfield Road in Germantown, Maryland 20874 (subject site).

**Scope of Services:**

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

KCI visited the site on September 27, 2016 and deployed thirteen (13) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

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



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

These tests represent:

- Follow-up sampling of a school that had HVAC modifications over the summer.

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

- Determine if the HVAC project changed previously detected radon levels

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

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

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

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

### **Results:**

The results of the radon test analysis indicated the following:

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

Notes:

D- Duplicate sample

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

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

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

Sincerely,



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

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

# ATTACHMENT A

## Floor Plan With Test Locations

# ATTACHMENT B

## Radon Test Summary Spreadsheet

<b>Radon Testing Results</b>		
<b>Longview School</b>		
<b>Test Period: 09/27/16-09/30/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7714264	102	0.6
7714267	102	0.7
7714256	144	< 0.3
7714300	102G	< 0.3
7714259	102H	< 0.3
7714260	102I	< 0.3
7714266	102I	< 0.3
7714294	157A	< 0.3
7714296	* 159 (Tampered)	< 0.3
7714249	GYM	< 0.3
7714293	* GYM (Missing)	-
7714297	MAIN	< 0.3

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Longview School</b>		
<b>Test Period: 09/27/16-09/30/16</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7714284	D (144)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

Radon test result report for:  
**LONGVIEW SCHOOL**  
**MAIN**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7714267	102	2016-09-27 @ 4:00 pm	2016-09-30 @ 1:00 pm	0.7 ± 0.3	2016-10-03
7714264	102	2016-09-27 @ 4:00 pm	2016-09-30 @ 1:00 pm	0.6 ± 0.3	2016-10-03
7714300	102G	2016-09-27 @ 4:00 pm	2016-09-30 @ 1:00 pm	< 0.3	2016-10-03
7714259	102H	2016-09-27 @ 4:00 pm	2016-09-30 @ 1:00 pm	< 0.3	2016-10-03
7714266	102I	2016-09-27 @ 4:00 pm	2016-09-30 @ 1:00 pm	< 0.3	2016-10-03
7714260	102I	2016-09-27 @ 4:00 pm	2016-09-30 @ 1:00 pm	< 0.3	2016-10-03
7714256	144	2016-09-27 @ 4:00 pm	2016-09-30 @ 1:00 pm	< 0.3	2016-10-03
7714284	144	2016-09-27 @ 4:00 pm	2016-09-30 @ 1:00 pm	< 0.3	2016-10-03
7714294	157A	2016-09-27 @ 3:00 pm	2016-09-30 @ 1:00 pm	< 0.3	2016-10-03
7714296	159	2016-09-27 @ 4:00 pm	2016-09-30 @ 1:00 pm	< 0.3	2016-10-03
7714293	GYM	@	@		
7714249	GYM	2016-09-27 @ 3:00 pm	2016-09-30 @ 1:00 pm	< 0.3	2016-10-03
7714297	MAIN	2016-09-27 @ 4:00 pm	2016-09-30 @ 1:00 pm	< 0.3	2016-10-03



October 7, 2016

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

Radon test result report for:

**MCPS Radon**

**Phase 18 Office Blanks**

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

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

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

---

October 12, 2016

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

---

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

---

<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

---

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

---

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

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



### Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 18

Name of Schools:

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

---

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

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

**RADON SCREENING SURVEY – FOLLOW-UP LONGVIEW SCHOOL**

13900 Bromfield Road, Germantown, Maryland 20874

**EXECUTIVE SUMMARY**

Date of Test Report:	4/13/16 Follow-Up
Round of Testing:	Initial <span style="border: 1px solid red; border-radius: 50%; padding: 2px;">Follow-up</span> Post Remediation
# Rooms Tested	1
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	<0.4
High Value:	<0.4
Confirmed Rooms $\geq$ 4.0 pCi/L US EPA Action Level	0

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

Room	Result (pCi/L) 2/17/16 Initial	Result (pCi/L) 4/13/16 Follow-Up	Average Result (pCi/L)
145	--- Missing	<0.4	<0.4



## MCPS RADON TESTING

### Executive Summary: Longview School

Date of Test Report:	4/13/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	1
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.4
High Value:	< 0.4

#### Project Status:

Retesting completed; no further action at this time.





April 13, 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 # 12146341.31

Location: Longview School  
13900 Bromfield Road  
Germantown, MD 20874

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 Longview School, located at 13900 Bromfield Road in Germantown, Maryland 20874 (subject site).

**Scope of Services:**

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

KCI visited the site on March 8, 2016 and deployed one (1) activated charcoal (AC) radon test kit. 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 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 March 11, 2016 to retrieve the radon sampling test kit. KCI shipped all radon tests via overnight delivery to AccuStar Labs for analysis by gamma-ray spectroscopy. Accustar Labs is a NRSB certified analytical laboratory for radon analysis (certification # ARL0007) located at 929 Mount

Zion Road, Lebanon, Pennsylvania.

**Evaluation of Testing Conditions:**

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

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

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

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

**Results:**

The results of the radon test analysis indicated the following:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
$\geq 4.0$ pCi/L	none	n/a
$< 4.0$ 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. The Spike sample analysis results indicate the laboratory is operating within statistical control limits.

The sampling location, 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 11 testing. Office blanks were not submitted under each school individually.

<b>Radon Testing Results</b>		
<b>Longview School</b>		
<b>Test Period: 03/08/16-03/11/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
3028806	145	<0.4

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results



NRPP 10511AL  
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 12146341

KCI Technologies  
936 Ridgebrook Rd  
Sparks MD 21152


Longview School  
13900 Bromfield Rd  
Germantown MD 20874

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3016770	3028806	03/08/2016 4:33 pm 03/11/2016 12:46 pm	Unit 145 First Floor	<0.4

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

Distributed by: KCI Technologies, Inc.

Date Received: 03/15/2016 Date Logged: 03/15/2016 Date Analyzed: 03/16/2016 Date Reported: 03/16/2016

Report Reviewed By: 

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

**Disclaimer:**

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

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

**Send Written Report To:**

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

**Site Tested:**

Site Name Longview School  
 Address 13900 Bromfield Rd.  
 Address  
 City / Town Germantown  
 State/Province Postal Code MD 20874  
 Test Country Montgomery County  
 Project Number 12146341

**Contact Information:**

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

Lab Use Only	Device Number	Building Number	Unit Number	Floor	Name of Room	Start Date mm/dd/yyyy	Start Time hh:mm am / pm	Stop Date mm/dd/yyyy	Stop Time hh:mm am / pm	Lab Use Only
	3028806		145	1	730	03/08/2016	14:33	03/11/2016	12:46	

NRPP 10511AL  
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 12146341

KCI Technologies  
936 Ridgebrook Rd  
Sparks MD 21152

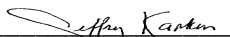
MCPS Radon Phase 11 Office Blank

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3016739	3029191	03/08/2016 10:00 am 03/11/2016 10:00 am	Office Blank	<0.4

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

Distributed by: KCI Technologies, Inc.

Date Received: 03/15/2016 Date Logged: 03/15/2016 Date Analyzed: 03/15/2016 Date Reported: 03/16/2016

Report Reviewed By: 

Report Approved By: 

Carolyn D. Koke, President, AccuStar Labs

**Disclaimer:**

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

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

Radon Device Type Open Face Canister


**Send Written Report To:**

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

**Site Tested:**

Site Name	MCPs Office Blank
Address	936 Ridgebrook Rd
Address	
City / Town	Sparks
State/Province Postal Code	MD 21152
Test Country	Montgomery County
Project Number	12146341

**Contact Information:**

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

Lab Use Only	Device Number	Building Number	Unit Number	Floor	Name of Room	Start Date mm/dd/yyyy	Start Time hh:mm am / pm	Stop Date mm/dd/yyyy	Stop Time hh:mm am / pm	Lab Use Only
	3029191	1	1	1	Office Blank	03/08/2016	10:00 am	03/11/2016	10:00 am	

NRPP 10511AL  
NRSB ARL0007

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

Laboratory Report for:

Property Tested:

KCI Technologies  
936 Ridgebrook Rd  
Sparks MD 21152

MCPS  
Transit Blanks

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

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

Distributed by: KCI Technologies, Inc.

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

Report Reviewed By: Christie Bates

Report Approved By: Carolyn D. Koke

Carolyn D. Koke, President, AccuStar Labs

**Disclaimer:**

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

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.

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

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

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

**Test Site Info**

Name of Building/Project or Owner: Transit County: \_\_\_\_\_  
 Site Address: Transit State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 City: \_\_\_\_\_ Email: \_\_\_\_\_

Projects Contact Name: Don Coale Phone: \_\_\_\_\_

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

Multi-Page Report Y-N

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

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

1/27/2016

KCI Technologies, Inc.

3010588 3028953 ACPC275B EXP12/31/2018

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

Both Placed by and Retrieved by signatures are required  
 Canisters placed by \_\_\_\_\_ # \_\_\_\_\_  
 Canisters retrieved by \_\_\_\_\_ # \_\_\_\_\_

Send Results To: \_\_\_\_\_ Date: 1/27/16  
 Company Name: KCI Tech  
 Address: 936 Ridgebrook  
 City: Sparks State: MD Zip: 21152  
 Phone: 410-599-3826  
 EMAIL Results to: James.Mouldale@kci.com  
 Attention: James Mouldale

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

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

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

# TCS INDUSTRIES, INC.

(717) 657-7032

RADON GAS DETECTION

www.radondetek.com

4326 Crestview Road, Harrisburg, PA 17112

James Mouldale  
KCI  
936 Ridgebrook Rd.  
Sparks, MD 21152

April 04, 2016

Dear Mr. Mouldale:

The spike exposure data were:

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

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

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

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

Sincerely,



Carl H. Distenfeld, CHP

\*\*\*\*\*  
TCS Radon Chamber NRSB CHM 0002  
\*\*\*\*\*

NRPP 10511AL  
NRSB ARL0007

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

Laboratory Report for:

Property Tested:

KCI Technologies  
936 Ridgebrook Rd  
Sparks MD 21152

MCPS  
Radon Spike Sample Laboratory Results

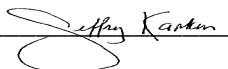
Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3020102	3029166	04/04/2016 11:10 am 04/06/2016 11:13 am	Not Indicated	11.9
3020103	3029214	04/04/2016 11:10 am 04/06/2016 11:13 am	Not Indicated	11.5
3020104	3029217	04/04/2016 11:10 am 04/06/2016 11:13 am	Not Indicated	10.7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


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

Distributed by: KCI Technologies, Inc.

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

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

Report Reviewed By: 

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

**Disclaimer:**

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

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




**Send Written Report To:**

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

**Site Tested:**

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

**Contact Information:**

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

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



### MCPS RADON TESTING

#### Executive Summary: Longview School

Date of Test Report:	2/17/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	21
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	0.7

#### Project Status:

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



February 17, 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 # 12146341.25

Location: Longview School  
13900 Bromfield Road  
Germantown, MD 20874

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 Longview School, located at 13900 Bromfield Road in Germantown, Maryland 20874 (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 19, 2016 and deployed twenty-five (25) 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 22, 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</b>
$\geq 4.0$ pCi/L	none	n/a
$< 4.0$ pCi/L	See Attachment B	

Notes:  
D- Duplicate sample

The field blank, office blank, and lab transit 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



<b>Radon Testing Results</b>		
<b>Longview Elementary School</b>		
<b>Test Period: 01/19/16-01/22/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7721625	100	0.6
7721627	134	< 0.3
7721648	136	0.6
7721619	137	< 0.3
7721622	138	< 0.3
7721638	140	< 0.3
7721634	141	< 0.3
7717814	142	< 0.3
7721636	143	< 0.3
7721639	144	< 0.3
7717845	147	< 0.3
7717877	149	< 0.3
7721642	151	< 0.3
7721663	153	< 0.3
7717812	157	< 0.3
7717813	157	< 0.3
7721629	137C	0.7
7721640	143C	< 0.3
7721637	* 145 (missing)	0
7721626	147C	< 0.3
7721641	151C	< 0.3
7721646	157A	0.6

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Longview Elementary School</b>		
<b>Test Period: 01/19/16-01/22/16</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7721644	D (136)	< 0.3
7721623	FB (137)	< 0.3
7721454	OB (0)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

February 11, 2016  
**LABORATORY ANALYSIS  
REPORT \*\***

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7721625	100	2016-01-19 @ 1:00 pm	2016-01-22 @ 10:00 am	0.6 ± 0.3	2016-01-26
7721627	134	2016-01-19 @ 1:00 pm	2016-01-22 @ 10:00 am	< 0.3	2016-01-26
7721644	136	2016-01-19 @ 1:00 pm	2016-01-22 @ 10:00 am	< 0.3	2016-01-27
7721648	136	2016-01-19 @ 1:00 pm	2016-01-22 @ 10:00 am	0.6 ± 0.3	2016-01-27
7721619	137	2016-01-19 @ 1:00 pm	2016-01-22 @ 10:00 am	< 0.3	2016-01-26
7721623	137	2016-01-19 @ 1:00 pm	2016-01-22 @ 10:00 am	< 0.3	2016-01-26
7721629	137C	2016-01-19 @ 1:00 pm	2016-01-22 @ 10:00 am	0.7 ± 0.3	2016-01-26
7721622	138	2016-01-19 @ 1:00 pm	2016-01-22 @ 10:00 am	< 0.3	2016-01-26
7721638	140	2016-01-19 @ 1:00 pm	2016-01-22 @ 10:00 am	< 0.3	2016-01-26
7721634	141	2016-01-19 @ 1:00 pm	2016-01-22 @ 10:00 am	< 0.3	2016-01-26
7717814	142	2016-01-19 @ 1:00 pm	2016-01-22 @ 10:00 am	< 0.3	2016-01-26
7721636	143	2016-01-19 @ 1:00 pm	2016-01-22 @ 10:00 am	< 0.3	2016-01-27
7721640	143C	2016-01-19 @ 1:00 pm	2016-01-22 @ 10:00 am	< 0.3	2016-01-26
7721639	144	2016-01-19 @ 1:00 pm	2016-01-22 @ 10:00 am	< 0.3	2016-01-26
7721637	145	@	@		
7717845	147	2016-01-19 @ 1:00 pm	2016-01-22 @ 10:00 am	< 0.3	2016-01-27
7721626	147C	2016-01-19 @ 1:00 pm	2016-01-22 @ 10:00 am	< 0.3	2016-01-26
7717877	149	2016-01-19 @ 1:00 pm	2016-01-22 @ 10:00 am	< 0.3	2016-01-27
7721642	151	2016-01-19 @ 1:00 pm	2016-01-22 @ 10:00 am	< 0.3	2016-01-26
7721641	151C	2016-01-19 @ 1:00 pm	2016-01-22 @ 10:00 am	< 0.3	2016-01-26
7721663	153	2016-01-19 @ 1:00 pm	2016-01-22 @ 10:00 am	< 0.3	2016-01-26
7717812	157	2016-01-19 @ 1:00 pm	2016-01-22 @ 10:00 am	< 0.3	2016-01-26
7717813	157	2016-01-19 @ 1:00 pm	2016-01-22 @ 10:00 am	< 0.3	2016-01-27
7721646	157A	2016-01-19 @ 1:00 pm	2016-01-22 @ 10:00 am	0.6 ± 0.3	2016-01-26

---

February 11, 2016  
**\*\* LABORATORY ANALYSIS REPORT \*\***

---

Radon test result report for:  
**LONGVIEW ELEMENTARY SCHOOL**  
**OFFICE BLANK**

---

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7721454	0	2016-01-19 @ 3:00 pm	2016-01-22 @ 1:00 pm	< 0.3	2016-01-26

---

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

February 2, 2016  
**LABORATORY ANALYSIS REPORT**

Radon test result report for:  
**MCPS PHASE 5 & 6 TRANSIT BLANKS**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7722194	1	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718494	10	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718475	11	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718495	12	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718496	13	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718497	14	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718498	15	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718499	16	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718500	17	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718296	18	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718295	19	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7722195	2	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7716789	20	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7716785	21	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-26
7716791	22	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7716786	23	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7716793	24	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718274	25	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7716792	26	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718294	27	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718293	28	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718292	29	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7722197	3	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718290	30	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7722198	4	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7722199	5	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7722211	6	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718491	7	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718476	8	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-26
7718479	9	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27

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





### Chain of Custody

Project Name: MCPS Radon Phase VI

Name of Schools:

- |                          |                              |                           |
|--------------------------|------------------------------|---------------------------|
| 1. Francis Scott Key MS  | 12. Little Bennett ES        | 23. Rolling Terrace ES    |
| 2. Gaithersburg ES       | 13. Loiderman MS             | 24. Roscoe Nix ES         |
| 3. Gaithersburg MS       | 14. Longview ES              | 25. Sally K. Ride ES      |
| 4. Galway ES             | 15. Meadow Hall ES           | 26. Spark Matsunaga ES    |
| 5. Great Seneca Creek ES | 16. Neelsville MS            | 27. Tacoma Park ES        |
| 6. Harmony Hills ES      | 17. New Hampshire Estates ES | 28. Thomas Pyle MS        |
| 7. John Poole MS         | 18. North Bethesda MS        | 29. Wayside ES            |
| 8. Judith A. Resnik ES   | 19. Northwest HS             | 30. Westbrook ES (retest) |
| 9. Kemp Mill ES          | 20. Pine Crest ES            | 31. Westland MS (retest)  |
| 10. Kingsview MS         | 21. Radnor Center            | 32. William B. Gibbs ES   |
| 11. Lakelands Park MS    | 22. Ritchie Park ES          | 33. William Tyler Page ES |

	Date	Initials
Radon Test Kits Deployed	1/19/16	JM
Radon Test Kits Sampled	1/22/16	JM
Radon Test Kits Shipped to Lab*	1/22/16	JM
Radon Test Kits Received by Lab*	1/26/16	JM

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