



**MONTGOMERY COUNTY PUBLIC SCHOOLS
RADON TESTING**

**Executive Summary:
Emory Grove Center**

18100 Washington Grove Lane
Gaithersburg, MD 20877

Date of Test Report:	3/15/2019
Round of Testing:	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested:	1
# of Rooms \geq 4.0 pCi/L:	0
Low Value:	1.0
High Value:	1.0

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: Emory Grove Center
18100 Washington Grove Lane,
Gaithersburg, MD 20877

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 Emory Grove Center, located at 18100 Washington Grove Lane, Gaithersburg, MD 20877 (subject site).

Scope of Services:

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

PSI visited the site on February 26, 2019 and deployed one (1) activated charcoal (AC) radon test kit. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on March 01, 2019 to retrieve the radon sampling test kit. A floor plan map of the building with the test location is included as Attachment A of this report.

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

Evaluation of Testing Conditions:

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

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



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

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:
D -Duplicate Sample

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

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

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

ATTACHMENT B

Radon Test Summary Spreadsheet

Radon Testing Results		
Emory Grove Center		
Testing period: 2/26/19 - 3/01/19		
Kit Number	Room / Area	Result (pCi/L)
3923325	115A	1.0

Table Notes:

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control

ATTACHMENT C

Laboratory Analytical Results

NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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

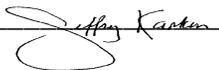
MCPS Radon Survey Emory Grove Center
18100 Washington Grove Lane
Gaithersburg MD 20877

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
3220807	3923325	02/26/2019 1:50 pm 03/01/2019 11:55 am	Floor Main Level Room 115A	1.0

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

Distributed by: Intertek-PSI (VA)

Date Received: 03/05/2019 Date Logged: 03/05/2019 Date Analyzed: 03/05/2019 Date Reported: 03/06/2019

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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: Emory Grove Center

18100 Washington Grove Lane
Gaithersburg, MD 20877

Date of Test Report:	2/2/2019
Round of Testing:	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested:	49
# of Rooms \geq 4.0 pCi/L:	0
Low Value:	<0.4
High Value:	3.8

Project Status

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



February 2, 2019

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

Re: Radon Testing Services

Location: Emory Grove Center
18100 Washington Grove Lane,
Gaithersburg, MD 20877

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 Emory Grove Center, located at 18100 Washington Grove Lane, Gaithersburg, MD 20877 (subject site).

Scope of Services:

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

PSI visited the site on December 3, 2018 and deployed sixty-two (62) activated charcoal (AC) radon test kits. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on December 6, 2018 to retrieve the radon sampling test kits. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

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



Evaluation of Testing Conditions:

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:

D -Duplicate Sample

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

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

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



Respectfully Submitted,

INTERTEK-PSI

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

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

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

ATTACHMENT B

Radon Test Summary Spreadsheet

Radon Testing Results		
Emory Grove Center		
Testing period: 12/3/18 - 12/6/18		
Kit Number	Room / Area	Result (pCi/L)
3918533	100A	1.6
3918534	100B	1.5
3918535	100C	1.8
3918536	100E	2.0
3918537	100F	1.5
3918538	101	0.5
3918539	102	0.4
3918540	103	<0.4
3918461	104	0.6
3918463	105	<0.4
3918345	110A	1.5
3888410	115A (MISSING)	--
3918358	115	0.9
3918347	118	0.9
3918349	120	1.4
3918357	122	1.4
3918311	124A	0.7
3918348	125	3.8
3918314	126A	0.9
3918813	126	0.8
3918350	129	1.8
3918355	131	1.1
3918529	132	<0.4
3918524	132A	<0.4
3918344	133	0.9
3918304	133B	0.7
3918465	134	0.5
3917530	135D	0.6
3918301	135F	0.7
3918466	136	0.4
3918469	136B	<0.4
3918468	136C	<0.4
3918467	136D	0.4
3918521	139	1.2
3918522	139 A/B	<0.4
3918523	140	<0.4
3918312	140A	<0.4
3918525	141	<0.4
3918526	141A	<0.4
3918527	142	<0.4
3918528	143	<0.4
3918464	144	0.7
3918360	APR (106)	0.4

Radon Testing Results		
Emory Grove Center		
Testing period: 12/3/18 - 12/6/18		
Kit Number	Room / Area	Result (pCi/L)
3918323	APR (106)	<0.4
3918346	FACP	0.9
3918531	General Office (100)	1.4
3917528	Gym (135)	0.5
3917529	Gym (135)	0.6
3917526	IMC (124)	0.7
3917527	IMC (124)	0.8
3918532	Kitchen (110)	1.4
3918359	Staff Lounge (113)	1.4

Radon Testing Results		
Emory Grove Center		
Testing period: 12/3/18 - 12/6/18		
Kit Number	QC Type	Result (pCi/L)
3918462	104 (D)	0.6
3918356	131 (D)	1.4
3918530	132 (D)	<0.4
3918331	135D (D)	0.6
3918470	136B (D)	<0.4
3918321	Kitchen (110) (D)	1.2
3927676	Field Blank	<0.4
3927608	Field Blank	<0.4
3927652	Office Blank	<0.4
3918308	Transit Blank	<0.4

Table Notes:

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control

ATTACHMENT C

Laboratory Analytical Results

NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Emory Grove Center
Not Indicated
Gaithersburg MD 20877

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
3201761	3918357	12/03/2018 1:31 pm - 12/06/2018 12:52 pm	Floor First Room 122	1.4
3201762	3918311	12/03/2018 1:18 pm - 12/06/2018 12:39 pm	Floor First Room 124A	0.7
3201763	3918523	12/03/2018 12:51 pm - 12/06/2018 12:21 pm	Floor First Room 140	0.4
3201764	3918813	12/03/2018 1:14 pm - 12/06/2018 12:35 pm	Floor First Room 126	0.8
3201765	3918538	12/03/2018 12:36 pm - 12/06/2018 12:06 pm	Floor First Room 101	0.5
3201766	3918345	12/03/2018 1:23 pm - 12/06/2018 12:44 pm	Floor First Room 110A	1.5
3201767	3918536	12/03/2018 12:34 pm - 12/06/2018 12:04 pm	Floor First Room 100E	2.0
3201768	3918347	12/03/2018 1:25 pm - 12/06/2018 12:46 pm	Floor First Room 118	0.9
3201769	3918468	12/03/2018 12:46 pm - 12/06/2018 12:16 pm	Floor First Room 136C	< 0.4
3201770	3918356	12/03/2018 1:29 pm - 12/06/2018 12:51 pm	Floor First Room 131 Duplicate	1.4
3201771	3918532	12/03/2018 1:22 pm - 12/06/2018 12:43 pm	Floor First Room Kitchen (110)	1.4

Comment: AMENDED REPORT on 1-8-19 to add correct dates and times for 3918314 and 3927652.

Test Performed By: Rinzo Renthlei

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018 Date Logged: 12/07/2018 Date Analyzed: 12/08/2018 Date Reported: 12/19/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

Disclaimer:

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

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NRPP 105011 AL
NRSB ARL0007

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 Emory Grove Center
Not Indicated
Gaithersburg MD 20877

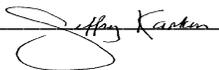
Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
3201772	3918533	12/03/2018 12:31 pm - 12/06/2018 12:01 pm	Floor First Room 100A	1.6
3201773	3918527	12/03/2018 12:55 pm - 12/06/2018 12:25 pm	Floor First Room 142	< 0.4
3201774	3918331	12/03/2018 1:11 pm - 12/06/2018 12:33 pm	Floor First Room 135D Duplicate	0.6
3201775	3918531	12/03/2018 12:30 pm - 12/06/2018 12:00 pm	Floor First Room General Office (100)	1.4
3201776	3918465	12/03/2018 12:43 pm - 12/06/2018 12:13 pm	Floor First Room 134	0.5
3201777	3918522	12/03/2018 12:50 pm - 12/06/2018 12:20 pm	Floor First Room 139B/A	< 0.4
3201778	3918358	12/03/2018 1:32 pm - 12/06/2018 12:53 pm	Floor First Room 115	0.9
3201779	3917529	12/03/2018 1:10 pm - 12/06/2018 12:31 pm	Floor First Room Gym (135)	0.6
3201780	3918525	12/03/2018 12:53 pm - 12/06/2018 12:23 pm	Floor First Room 141	< 0.4
3201781	3917527	12/03/2018 1:17 pm - 12/06/2018 12:38 pm	Floor First Room IMC (124)	0.8
3201782	3918467	12/03/2018 12:45 pm - 12/06/2018 12:15 pm	Floor First Room 136D	0.4

Comment: AMENDED REPORT on 1-8-19 to add correct dates and times for 3918314 and 3927652.

Test Performed By: Rinzo Renthlei

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018 Date Logged: 12/07/2018 Date Analyzed: 12/08/2018 Date Reported: 12/19/2018

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Emory Grove Center
Not Indicated
Gaithersburg MD 20877

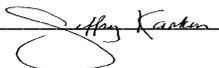
Log Number	Device Number	Test Exposure	Duration:	Area Tested	Result pCi/L
3201783	3918463	12/03/2018 12:41 pm	12/06/2018 12:11 pm	Floor First Room 105	< 0.4
3201784	3918301	12/03/2018 1:13 pm	12/06/2018 12:34 pm	Floor First Room 135F	0.7
3201785	3918540	12/03/2018 12:38 pm	12/06/2018 12:08 pm	Floor First Room 103	< 0.4
3201786	3918539	12/03/2018 12:37 pm	12/06/2018 12:07 pm	Floor First Room 102	0.4
3201787	3918530	12/03/2018 1:06 pm	12/06/2018 12:28 pm	Floor First Room 132 Duplicate	< 0.4
3201788	3918464	12/03/2018 12:42 pm	12/06/2018 12:12 pm	Floor First Room 144	0.7
3201789	3918360	12/03/2018 1:35 pm	12/06/2018 12:56 pm	Floor First Room APR (106)	0.4
3201790	3918304	12/03/2018 1:20 pm	12/06/2018 12:41 pm	Floor First Room 133B	0.7
3201791	3918534	12/03/2018 12:32 pm	12/06/2018 12:02 pm	Floor First Room 100B	1.5
3201792	3918535	12/03/2018 12:33 pm	12/06/2018 12:03 pm	Floor First Room 100C	1.8
3201793	3918314	12/03/2018 1:15 pm	12/06/2018 12:36 pm	First Floor Room 126A	0.9

Comment: AMENDED REPORT on 1-8-19 to add correct dates and times for 3918314 and 3927652.

Test Performed By: Rinzo Renthlei

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018 Date Logged: 12/07/2018 Date Analyzed: 12/08/2018 Date Reported: 12/19/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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EPA Method #402-R-92-004
Charcoal Canister
NRPP Device Code 6048
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Laboratory Report for:

Property Tested: Project # 04481387-1

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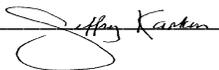
Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
3201794	3918521	11/27/2018 1:38 pm 11/30/2018 10:00 am	First Floor Room 139	1.2
3201795	3918321	12/03/2018 1:20 pm 12/06/2018 12:42 pm	Floor First Room Kitchen (110) Duplicate	1.2
3201796	3918323	12/03/2018 1:36 pm 12/06/2018 12:57 pm	Floor First Room APR (106)	< 0.4
3201797	3918528	12/03/2018 1:05 pm 12/06/2018 12:26 pm	Floor First Room 143	< 0.4
3201798	3918312	12/03/2018 12:52 pm 12/06/2018 12:22 pm	Floor First Room 140A	< 0.4
3201799	3918461	12/03/2018 12:39 pm 12/06/2018 12:09 pm	Floor First Room 104	0.6
3201800	3927652	12/03/2018 6:00 am 12/06/2018 6:00 pm	Floor NA Room Office Blank	< 0.4
3201801	3918470	12/03/2018 12:48 pm 12/06/2018 12:18 pm	Floor First Room 136B Duplicate	< 0.4
3201802	3918469	12/03/2018 12:47 pm 12/06/2018 12:17 pm	Floor First Room 136B	< 0.4
3201803	3918349	12/03/2018 1:27 pm 12/06/2018 12:48 pm	Floor First Room 120	1.4
3201804	3918350	12/03/2018 1:28 pm 12/06/2018 12:49 pm	Floor First Room 129	1.8

Comment: AMENDED REPORT on 1-8-19 to add correct dates and times for 3918314 and 3927652.

Test Performed By: Rinzo Renthlei

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018 Date Logged: 12/07/2018 Date Analyzed: 12/08/2018 Date Reported: 12/19/2018

Report Reviewed By: 

Report Approved By: 

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Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Emory Grove Center
Not Indicated
Gaithersburg MD 20877

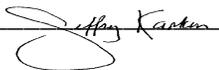
Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
3201805	3918462	12/03/2018 12:39 pm - 12/06/2018 12:10 pm	Floor First Room 104 Duplicate	0.6
3201806	3917526	12/03/2018 1:16 pm - 12/06/2018 12:37 pm	Floor First Room IMC (124))	0.7
3201807	3918537	12/03/2018 12:35 pm - 12/06/2018 12:05 pm	Floor First Room 100F	1.5
3201808	3918355	12/03/2018 1:29 pm - 12/06/2018 12:50 pm	Floor First Room 131	1.1
3201809	3918524	12/03/2018 1:08 pm - 12/06/2018 12:29 pm	Floor First Room 132A	< 0.4
3201810	3917530	12/03/2018 1:11 pm - 12/06/2018 12:32 pm	Floor First Room 135D	0.6
3201811	3917528	12/03/2018 1:09 pm - 12/06/2018 12:30 pm	Floor First Room Gym (135)	0.5
3201812	3927608	12/03/2018 12:30 pm - 12/06/2018 1:00 pm	Floor NA Room Field Blank	< 0.4
3201813	3918466	12/03/2018 12:44 pm - 12/06/2018 12:14 pm	Floor First Room 136	0.4
3201814	3918348	12/03/2018 1:26 pm - 12/06/2018 12:47 pm	Floor First Room 125	3.8
3201815	3918359	12/03/2018 1:34 pm - 12/06/2018 12:55 pm	Floor First Room Staff Lounge (113)	1.4

Comment: AMENDED REPORT on 1-8-19 to add correct dates and times for 3918314 and 3927652.

Test Performed By: Rinzo Renthlei

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018 Date Logged: 12/07/2018 Date Analyzed: 12/08/2018 Date Reported: 12/19/2018

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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

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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 Emory Grove Center
Not Indicated
Gaithersburg MD 20877

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
3201816	3918529	12/03/2018 1:06 pm - 12/06/2018 12:27 pm	Floor First Room 132	< 0.4
3201817	3918346	12/03/2018 1:24 pm - 12/06/2018 12:45 pm	Floor First Room FACP	0.9
3201818	3918344	12/03/2018 1:19 pm - 12/06/2018 12:40 pm	Floor First Room 133	0.9
3201819	3918308	12/03/2018 6:00 am - 12/06/2018 6:00 pm	Floor NA Room Transit Blank	< 0.4
3201820	3918526	12/03/2018 12:54 pm - 12/06/2018 12:24 pm	Floor First Room 141A	< 0.4
3201821	3927676	12/03/2018 12:30 pm - 12/06/2018 1:00 pm	Floor NA Room Field Blank	< 0.4

Comment: AMENDED REPORT on 1-8-19 to add correct dates and times for 3918314 and 3927652.

Test Performed By: Rinzo Renthlei

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018 Date Logged: 12/07/2018 Date Analyzed: 12/08/2018 Date Reported: 12/19/2018

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NRPP 105011 AL
NRSB ARL0007
Ohio RL41

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

Laboratory Report for:

Property Tested:

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

MCPS Radon Survey
4514 Taylorsville Road
Dayton OH 45424

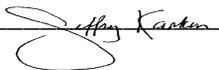
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
3204125	3926831	12/07/2018 9:47 am	12/10/2018 9:47 am	Spike	36.1
3204126	3926832	12/07/2018 9:47 am	12/10/2018 9:47 am	Spike	34.8
3204127	3926833	12/07/2018 9:47 am	12/10/2018 9:47 am	Spike	33.7
3204128	3926834	12/07/2018 9:47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

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

Test Performed By: Unknown

Distributed by: Intertek-PSI (VA)

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

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT Intertek - PSI

Job Number 187732

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

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

Date Start: _____ Date Stop: _____

Time Start: 0947 Time Stop: 0947

Time Start: _____ Time Stop: _____

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

Device No.'s: _____

3926831 thru 3926840

G2 left

Date Start: _____ Date Stop: _____

Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____

Time Start: _____ Time Stop: _____

Device No.'s: _____

Device No.'s: _____

Date Start: _____ Date Stop: _____

Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____

Time Start: _____ Time Stop: _____

Device No.'s: _____

Device No.'s: _____

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



Chain of Custody

Project Name: MCPS Radon Survey 2018

Name of Schools:

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

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

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



MCPS RADON TESTING - EXECUTIVE SUMMARY

Site Name	Emory Grove Center
Date of Report	February 1, 2018
Round of Testing	Initial Follow-up Post Remediation 2 year testing 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	35
# Rooms \geq 4.0 pCi/L	0
Lowest Value	0.6 pCi/L
Highest Value	2.4 pCi/L

Current Project Status at this time: Results satisfactory to date; missed locations and missing/compromised tests to be sampled.



February 1, 2018

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

Re: Radon Testing Services

KCI Job #1214694182

Location: Emory Grove Center

18100 Washington Grove Lane
Gaithersburg, Maryland 20877

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 Emory Grove Center, located at 18100 Washington Grove Lane in Gaithersburg, Maryland 20877 (subject site).

SCOPE OF SERVICES

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

KCI visited the site on December 4, 2017 and deployed forty-two (42) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Appendix A of this report.

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

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

KCI returned to the site on December 7, 2017 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Aircheck, Inc. for analysis by gamma-ray spectroscopy. Aircheck, Inc. is a NRSB certified analytical laboratory for radon analysis (certification #ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

EVALUATION OF TESTING CONDITIONS

These tests represent:

- Post-mitigation biennial testing.

These tests were conducted to:

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

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the high-20s to mid-40s and high temperatures ranged from the low-40s to mid-50s. Maximum sustained winds ranged from 12-17 miles per hour. Average humidity was around 65%. 0.16 Inches of precipitation was recorded during the testing period.

RESULTS

The sampling locations, field observations, and analytical results are listed on Table 1 (Attachment B). The quality control sample locations and analytical results are listed on Table 2 (Attachment B). Missing/compromised tests, missed rooms, and locked rooms are listed on Table 3 (Attachment B). The laboratory

analytical results are included in Attachment C. Laboratory results and exposure data for the spike samples are also included in Attachment C.

The results of the radon test analysis indicated the following:

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

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

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

Sincerely,



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

Attachments:

B- Tables 1-3, Radon Test Summary Spreadsheets

C- Laboratory Analytical Results

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Radon Testing Results		
Emory Grove Center		
Test Period: 12/04/17-12/07/17		
Kit Number	Room / Area	Result
7985948	100	1.4
7985949	101	0.7
7985954	102	0.9
7985931	103	0.8
7985936	104	0.6
7985939	105	0.8
7985912	113	1.1
7985911	115	1.0
7985914	118	1.7
7985905	120	1.7
7985916	122	2.1
7985934	124	1.1
7985955	124	1.3
7985913	125	1.4
7985918	126	1.3
7985910	129	2.4
7985917	131	1.2
7985904	132	1.4
7985902	133	1.3
7985928	134	0.8
7985903	135	1.0
7985926	135	1.3
7985922	139	0.8
7985923	140	1.1
7985921	141	0.8
7985920	144	1.3
7985946	100A	1.2
7985933	100B	1.3
7985937	100C	1.3
7985935	100E	1.6
7985938	100F	1.5
7985941	100G	1.9
7985947	100H	1.8
7985927	124A	1.2
7985919	132A	2.1
7985929	* 136 (Missing)	-
7985915	APR	1.1
7985901	APR	1.5

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Emory Grove Center		
Test Period: 12/04/17-12/07/17		
Kit Number	QC Type	Result
7985924	D (135)	0.8
7985932	D (140)	0.7
7985930	FB (140)	< 0.3
7979378	OB (OFFICE BLANK)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:
EMORY GROVE CENTER
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7985948	100	2017-12-04 @ 11:00 am	2017-12-07 @ 11:00 am	1.4 ± 0.3	2017-12-11
7985946	100A	2017-12-04 @ 11:00 am	2017-12-07 @ 11:00 am	1.2 ± 0.3	2017-12-11
7985933	100B	2017-12-04 @ 11:00 am	2017-12-07 @ 11:00 am	1.3 ± 0.3	2017-12-11
7985937	100C	2017-12-04 @ 11:00 am	2017-12-07 @ 11:00 am	1.3 ± 0.3	2017-12-11
7985935	100E	2017-12-04 @ 11:00 am	2017-12-07 @ 11:00 am	1.6 ± 0.3	2017-12-12
7985938	100F	2017-12-04 @ 11:00 am	2017-12-07 @ 11:00 am	1.5 ± 0.3	2017-12-11
7985941	100G	2017-12-04 @ 11:00 am	2017-12-07 @ 11:00 am	1.9 ± 0.3	2017-12-12
7985947	100H	2017-12-04 @ 11:00 am	2017-12-07 @ 11:00 am	1.8 ± 0.3	2017-12-12
7985949	101	2017-12-04 @ 11:00 am	2017-12-07 @ 11:00 am	0.7 ± 0.3	2017-12-11
7985954	102	2017-12-04 @ 11:00 am	2017-12-07 @ 11:00 am	0.9 ± 0.3	2017-12-11
7985931	103	2017-12-04 @ 11:00 am	2017-12-07 @ 11:00 am	0.8 ± 0.3	2017-12-11
7985936	104	2017-12-04 @ 11:00 am	2017-12-07 @ 11:00 am	0.6 ± 0.3	2017-12-11
7985939	105	2017-12-04 @ 11:00 am	2017-12-07 @ 11:00 am	0.8 ± 0.3	2017-12-11
7985912	113	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	1.1 ± 0.3	2017-12-11
7985911	115	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	1.0 ± 0.3	2017-12-11
7985914	118	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	1.7 ± 0.3	2017-12-11
7985905	120	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	1.7 ± 0.3	2017-12-12
7985916	122	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	2.1 ± 0.4	2017-12-12
7985955	124	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	1.3 ± 0.3	2017-12-11
7985934	124	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	1.1 ± 0.3	2017-12-11
7985927	124A	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	1.2 ± 0.3	2017-12-11
7985913	125	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	1.4 ± 0.3	2017-12-11
7985918	126	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	1.3 ± 0.3	2017-12-12
7985910	129	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	2.4 ± 0.3	2017-12-11
7985917	131	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	1.2 ± 0.3	2017-12-11
7985904	132	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	1.4 ± 0.3	2017-12-11
7985919	132A	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	2.1 ± 0.3	2017-12-11
7985902	133	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	1.3 ± 0.3	2017-12-12
7985928	134	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	0.8 ± 0.3	2017-12-11
7985924	135	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	0.8 ± 0.3	2017-12-11
7985926	135	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	1.3 ± 0.3	2017-12-11
7985903	135	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	1.0 ± 0.3	2017-12-11
7985929	136	@	@		
7985922	139	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	0.8 ± 0.3	2017-12-12
7985930	140	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	< 0.3	2017-12-11
7985932	140	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	0.7 ± 0.3	2017-12-11
7985923	140	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	1.1 ± 0.3	2017-12-12

December 29, 2017

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
EMORY GROVE CENTER
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7985921	141	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	0.8 ± 0.3	2017-12-11
7985920	144	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	1.3 ± 0.3	2017-12-12
7985915	APR	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	1.1 ± 0.3	2017-12-11
7985901	APR	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	1.5 ± 0.3	2017-12-12
7979378	OFFICE BLANK	2017-12-04 @ 1:00 pm	2017-12-07 @ 1:00 pm	< 0.3	2017-12-11

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase

Names of Schools:

1. Brooke Grove Elementary School
2. Brown Station Elementary School
3. Diamond Elementary School Addition
4. Dufief Elementary School
5. Emory Grove Center
6. Fields Road Elementary School
7. Facilities Maintenance Depot
8. Forest Oak Middle School
9. Francis Scott Key Middle School
10. Gaithersburg Elementary School
11. Gaithersburg Middle School
12. Germantown Elementary School
13. Greenwood Elementary School
14. Jones Lane Elementary School
14. Newport Mill Middle School
15. Oakview Elementary School
16. Quince Orchard High School
17. Robert Frost Middle School
18. Rosa Parks Middle School
19. South Lake Elementary School

	Date	Initials
Radon Test Kits Deployed	12/04/17	JM
Radon Test Kits Collected	12/07/17	JM
Radon Test Kits Shipped to Lab*	12/07/17	JM
Radon Test Kits Received by Lab*	12/11/17	JM

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

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

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

December 19, 2017

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 182393

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

Date Start: 12/1/17 Date Stop: 12/4/17 Date Start: _____ Date Stop: _____

Time Start: 1049 Time Stop: 1049 Time Start: _____ Time Stop: _____

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

7975075, 7975064, 7975063, _____

7975065, 7975069, 7975070 _____

F4 Right

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

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

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

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

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

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

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



MCPS RADON TESTING

Executive Summary: Emory Grove Optimal Learning Center

Date of Test Report:	10/19/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	7
# Rooms \geq 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	0.8

Project Status:

Post remediation testing 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: Emory Grove Optimal Learning Center
18100 Washington Grove Lane
Gaithersburg, Maryland 20877

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 Emory Grove Optimal Learning Center, located at 18100 Washington Grove Lane in Gaithersburg, Maryland 20877 (subject site).

Scope of Services:

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

KCI visited the site on September 27, 2016 and deployed ten (10) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

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

Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

These tests represent:

- Post-mitigation testing for radon mitigation systems installed recently

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

- Confirm the success of the mitigation system(s)

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:

D- Duplicate sample

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

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

for the spike samples are also included in Attachment C.

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

Sincerely,



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

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Radon Testing Results		
Emory Grove Center		
Test Period: 09/27/16-09/30/16		
Kit Number	Room / Area	Result
7802969	134	0.8
7802967	135	0.5
7802975	135	0.8
7802956	136	< 0.3
7802976	139	< 0.3
7802961	140	< 0.3
7802955	141	0.5
7802964	139A	< 0.3

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Emory Grove Center		
Test Period: 09/27/16-09/30/16		
Kit Number	QC Type	Result
7802970	D (134)	0.8
7802973	FB (134)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

October 7, 2016

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
EMORY GROVE CENTER
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7802973	134	2016-09-27 @ 4:00 pm	2016-09-30 @ 12:00 pm	< 0.3	2016-10-03
7802969	134	2016-09-27 @ 4:00 pm	2016-09-30 @ 12:00 pm	0.8 ± 0.2	2016-10-03
7802970	134	2016-09-27 @ 4:00 pm	2016-09-30 @ 12:00 pm	0.8 ± 0.3	2016-10-03
7802975	135	2016-09-27 @ 4:00 pm	2016-09-30 @ 12:00 pm	0.8 ± 0.2	2016-10-03
7802967	135	2016-09-27 @ 4:00 pm	2016-09-30 @ 12:00 pm	0.5 ± 0.3	2016-10-03
7802956	136	2016-09-27 @ 4:00 pm	2016-09-30 @ 12:00 pm	< 0.3	2016-10-03
7802976	139	2016-09-27 @ 4:00 pm	2016-09-30 @ 12:00 pm	< 0.3	2016-10-03
7802964	139A	2016-09-27 @ 4:00 pm	2016-09-30 @ 12:00 pm	< 0.3	2016-10-03
7802961	140	2016-09-27 @ 4:00 pm	2016-09-30 @ 12:00 pm	< 0.3	2016-10-03
7802955	141	2016-09-27 @ 4:00 pm	2016-09-30 @ 12:00 pm	0.5 ± 0.2	2016-10-03

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

October 7, 2016

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

MCPS Radon

Phase 18 Office Blanks

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

Radon test result report for:

MCPS Radon**Phase 18 Transit Blanks**

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

October 12, 2016

**** LABORATORY ANALYSIS REPORT ****

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

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 176788

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

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

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

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

7769899, 7769884, 7769885, _____

7769889, 7769890, 7769891 _____

F3 Left

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

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

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

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

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

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

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 18

Name of Schools:

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

	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 BLAIR G. EWING CENTER

14501 Avery Rd, Rockville, Maryland 20853

EXECUTIVE SUMMARY

Date of Test Report:	3/3/16
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	3
# Rooms \geq 4.0 pCi/L:	1
Low Value:	0.9
High Value:	12.1
Confirmed Rooms \geq 4.0 pCi/L US EPA Action Level	1

Summary of Sampling Events \geq 4.0 pCi/L

Room	Result (pCi/L) 2/23/16	Result (pCi/L) 3/3/16	Average Result (pCi/L)
Gym Office	9.8	12.1	11.0
Health Room	4.8	2.2	3.5
L8	1.2 (tampered)	0.9	1.1



MCPS RADON TESTING

Executive Summary: Blair G. Ewing Center

Date of Test Report:	3/3/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	3
# Rooms \geq 4.0 pCi/L:	1
Low Value:	0.9
High Value:	12.1

Rooms with results \geq 4.0 pCi/L:
Gym Office (12.1 pCi/L)

Project Status:

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



March 3, 2016

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

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

Location: Blair G. Ewing Center
14501 Avery Road
Rockville, MD 20853

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 Blair G. Ewing Center, located at 14501 Avery Road in Rockville, Maryland 20853 (subject site).

Scope of Services:

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

KCI visited the site on February 8, 2016 and deployed 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. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

KCI returned to the site on February 11, 2016 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936

Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥ 4.0 pCi/L	Gym Office	12.1
< 4.0 pCi/L	See Attachment B	

Notes:
D- Duplicate sample

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

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

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

Sincerely,



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

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank*

PM- Project Manager

QC- Quality Control

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

Radon Testing Results		
Blair G Ewing Center		
Test Period: 02/08/16-02/11/16		
Kit Number	Room / Area	Result
7730193	GYM OFFICE	12.1
7730190	HEALTH ROOM	2.2
7730189	L8	0.9

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Blair G Ewing Center		
Test Period: 02/08/16-02/11/16		
Kit Number	QC Type	Result
7730191	D (HEALTH ROOM)	1.9
7730192	FB (HEALTH ROOM)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

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

Radon test result report for:
**BLAIR G EWING CENTER
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7730193	GYM OFFICE	2016-02-08 @ 2:00 pm	2016-02-11 @ 11:00 am	12.1 ± 0.8	2016-02-15
7730190	HEALTH ROOM	2016-02-08 @ 2:00 pm	2016-02-11 @ 11:00 am	2.2 ± 0.4	2016-02-15
7730191	HEALTH ROOM	2016-02-08 @ 2:00 pm	2016-02-11 @ 11:00 am	1.9 ± 0.4	2016-02-15
7730192	HEALTH ROOM	2016-02-08 @ 2:00 pm	2016-02-11 @ 11:00 am	< 0.3	2016-02-15
7730189	L8	2016-02-08 @ 2:00 pm	2016-02-11 @ 11:00 am	0.9 ± 0.3	2016-02-15

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

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

Radon test result report for:

**MCPS RADON
PHASE 8
OFFICE BLANKS**

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

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

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

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

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

February
15,
2016

**** LABORATORY ANALYSIS
REPORT ****

Spike Sample Laboratory Results

Radon test result report for:
MCPS

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCF Technologies Inc. Job Number 173704

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

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

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

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

7718281, 7718282, 7718291, _____

7718288, 7718289, 7718273 _____

ε3 Left

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

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

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

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

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

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

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 8

Name of Schools:

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

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

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



MCPS RADON TESTING

Executive Summary: Blair G. Ewing Center

Date of Test Report:	2/23/2016 (Rev 2)
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	94
# Rooms \geq 4.0 pCi/L:	2
Low Value:	< 0.3
High Value:	9.8

Rooms with results \geq 4.0 pCi/L:
Gym office (9.8 pCi/L), Health Room (4.8 pCi/L)

Project Status:

Initial testing completed; re-test needed for results \geq 4.0 pCi/L.
Initial testing completed; missing or compromised samples need re-test.



February 23, 2016 (Rev 2)

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

Re: **Radon Testing Services**
KCI Job # 12146341.20

Location: Blair G. Ewing Center
14501 Avery Road
Rockville, MD 20853

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 Blair G. Ewing Center, located at 14501 Avery Road in Rockville, Maryland 20853 (subject site).

Scope of Services:

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

KCI visited the site on December 21, 2015 and deployed one hundred-twelve (112) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

KCI returned to the site on December 24, 2015 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936

Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥ 4.0 pCi/L	Gym Office	9.8
	Health Room	4.8
< 4.0 pCi/L	See Attachment B	

Notes:
D- Duplicate sample

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

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

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

Sincerely,



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

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

B- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Radon Testing Results		
Blair G. Ewing Center		
Test Period: 12/21/15-12/24/15		
Kit Number	Room / Area	Result
7707095	A1	1.1
7707038	A10	2.0
7707041	A11	2.0
7707078	A14	1.3
7707075	A14A	0.9
7707089	A15	1.4
7707082	A16	1.0
7707046	A17	1.4
7707045	A17A	2.5
7707049	A17B	1.5
7707036	A19	0.9
7707085	A3	2.2
7707081	A4	1.0
7707064	A5	1.9
7707065	A6	1.4
7707043	A7	1.1
7707051	AB1	2.1
7707057	AB2	1.7
7707050	AB3	2.7
7707025	AB4	0.9
7707077	AB5 OFFICE	0.8
7707040	AB6	1.3
7707090	COMM. CONF RM	< 0.3
7707048	CONFERENCE RM A	0.7
7707087	CONFERENCE RM C	0.8
7707021	COUNSELOR OFFICE	2.5
7707091	FRONT DESK	1.1
7707020	GYM	< 0.3
7707059	GYM	0.8
7707062	GYM OFFICE	9.8
7707060	HEALTH RM	4.8
7707073	HEALTH RM OFFICE	1.4
7707010	L10	0.9
7707108	L11	0.8
7707009	L12	0.9
7707004	L12 OFFICE	0.9
7707098	L13	2.6
7707003	L14	1.4
7707096	L15	0.9
7707001	L16	1.6
7707083	L16 CONFER. RM	1.8
7707107	L17	1.0
7707086	L17 OFFICE	1.2
7707101	L3	0.9
7707076	L4	0.8
7707092	L5	1.0

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Blair G. Ewing Center		
Test Period: 12/21/15-12/24/15		
Kit Number	Room / Area	Result
7707102	L7	0.6
7707111	L7 OFFICE	0.7
7707006	* L8 (tampered)	1.2
7707066	L8 OFFICE	1.7
7707099	L9	1.2
7707053	M10	0.8
7707072	M11	1.7
7707011	M11 OFFICE	0.8
7707007	M12	3.3
7707014	M12 OFFICE	1.5
7707069	M13	1.4
7707054	M14	1.1
7707015	M15	0.8
7707018	M16	1.5
7707042	M17	0.9
7707047	M17 OFFICE	0.9
7707008	M2	0.9
7707074	M3	1.4
7707037	M4	1.1
7707071	M5	1.0
7707013	M5 OFFICE	0.6
7707058	M6	0.8
7707084	M7	1.8
7707019	M8	0.8
7707063	M8 TEACHER RM	1.0
7707005	M9	1.5
7707080	MPR	1.3
7707070	PRINCIPAL OFFICE	0.6
7707105	RC1	0.7
7707056	RC10	1.5
7707112	RC2	0.5
7707109	RC3	0.6
7707110	RC-6	< 0.3
7707106	RC7	< 0.3
7707088	RC8	< 0.3
7707022	SERVER ROOM	3.4
7707031	SM DINNING RM	< 0.3
7707035	STAFF LOUNGE	0.7
7707027	U1	0.9
7707052	U10	2.1
7707030	U10 OFFICE	0.7
7707034	U12	1.3
7707093	U3	2.1
7707033	U3 OFFICE	2.0
7707079	U4	1.8
7707028	U5	2.6
7707067	U6	1.7
7707024	U7A	1.4
7707029	U7B	0.7

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Blair G. Ewing Center		
Test Period: 12/21/15-12/24/15		
Kit Number	QC Type	Result
7707039	D (A19)	0.8
7707055	D (A7)	0.7
7707023	D (AB3)	2.9
7707002	D (L12 OFFICE)	1.2
7707103	D (L17)	1.0
7707097	D (L9)	1.2
7707012	D (M14)	1.3
7707016	D (M4)	1.1
7707017	D (M8)	0.9
7707061	D (U10 OFFICE)	0.9
7707026	D (U3)	2.4
7707044	FB (A7)	< 0.3
7707104	FB (L17)	< 0.3
7707068	FB (M6)	< 0.3
7707032	FB (U3)	< 0.3
7710502	OB (0)	< 0.3
7710508	OB (0)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

January 12, 2016 **LABORATORY ANALYSIS REPORT ****

Radon test result report for:
**BLAIR G. EWING CENTER
 MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7707022	Server Room	2015-12-21 @ 2:00 pm	2015-12-24 @ 9:00 am	3.4 ± 0.4	2015-12-28
7710502	0	2015-12-21 @ 6:00 pm	2015-12-24 @ 2:00 pm	< 0.3	2015-12-29
7710508	0	2015-12-21 @ 6:00 pm	2015-12-24 @ 2:00 pm	< 0.3	2015-12-29
7707095	A1	2015-12-21 @ 10:00 am	2015-12-24 @ 8:00 am	1.1 ± 0.4	2015-12-29
7707038	A10	2015-12-21 @ 10:00 am	2015-12-24 @ 8:00 am	2.0 ± 0.3	2015-12-28
7707041	A11	2015-12-21 @ 10:00 am	2015-12-24 @ 8:00 am	2.0 ± 0.4	2015-12-29
7707078	A14	2015-12-21 @ 10:00 am	2015-12-24 @ 8:00 am	1.3 ± 0.3	2015-12-28
7707075	A14A	2015-12-21 @ 11:00 am	2015-12-24 @ 8:00 am	0.9 ± 0.3	2015-12-28
7707089	A15	2015-12-21 @ 11:00 am	2015-12-24 @ 8:00 am	1.4 ± 0.3	2015-12-28
7707082	A16	2015-12-21 @ 10:00 am	2015-12-24 @ 8:00 am	1.0 ± 0.3	2015-12-28
7707046	A17	2015-12-21 @ 11:00 am	2015-12-24 @ 8:00 am	1.4 ± 0.3	2015-12-28
7707045	A17A	2015-12-21 @ 11:00 am	2015-12-24 @ 8:00 am	2.5 ± 0.4	2015-12-28
7707049	A17B	2015-12-21 @ 11:00 am	2015-12-24 @ 8:00 am	1.5 ± 0.3	2015-12-28
7707036	A19	2015-12-21 @ 11:00 am	2015-12-24 @ 8:00 am	0.9 ± 0.3	2015-12-28
7707039	A19	2015-12-21 @ 11:00 am	2015-12-24 @ 8:00 am	0.8 ± 0.3	2015-12-28
7707085	A3	2015-12-21 @ 10:00 am	2015-12-24 @ 8:00 am	2.2 ± 0.4	2015-12-28
7707081	A4	2015-12-21 @ 10:00 am	2015-12-24 @ 8:00 am	1.0 ± 0.3	2015-12-28
7707064	A5	2015-12-21 @ 10:00 am	2015-12-24 @ 8:00 am	1.9 ± 0.3	2015-12-28
7707065	A6	2015-12-21 @ 10:00 am	2015-12-24 @ 8:00 am	1.4 ± 0.3	2015-12-28
7707043	A7	2015-12-21 @ 10:00 am	2015-12-24 @ 8:00 am	1.1 ± 0.3	2015-12-28
7707044	A7	2015-12-21 @ 10:00 am	2015-12-24 @ 8:00 am	< 0.3	2015-12-28
7707055	A7	2015-12-21 @ 10:00 am	2015-12-24 @ 8:00 am	0.7 ± 0.3	2015-12-28
7707051	AB1	2015-12-21 @ 1:00 pm	2015-12-24 @ 9:00 am	2.1 ± 0.4	2015-12-28
7707057	AB2	2015-12-21 @ 1:00 pm	2015-12-24 @ 9:00 am	1.7 ± 0.3	2015-12-28
7707023	AB3	2015-12-21 @ 1:00 pm	2015-12-24 @ 9:00 am	2.9 ± 0.4	2015-12-28
7707050	AB3	2015-12-21 @ 1:00 pm	2015-12-24 @ 9:00 am	2.7 ± 0.4	2015-12-28
7707025	AB4	2015-12-21 @ 1:00 pm	2015-12-24 @ 9:00 am	0.9 ± 0.3	2015-12-28
7707077	AB5 OFFICE	2015-12-21 @ 1:00 pm	2015-12-24 @ 9:00 am	0.8 ± 0.3	2015-12-28
7707040	AB6	2015-12-21 @ 1:00 pm	2015-12-24 @ 9:00 am	1.3 ± 0.3	2015-12-28
7707090	COMM. CONF RM	2015-12-21 @ 11:00 am	2015-12-24 @ 8:00 am	< 0.3	2015-12-28
7707048	CONFERENCE RM A	2015-12-21 @ 10:00 am	2015-12-24 @ 8:00 am	0.7 ± 0.3	2015-12-28
7707087	CONFERENCE RM C	2015-12-21 @ 11:00 am	2015-12-24 @ 8:00 am	0.8 ± 0.3	2015-12-28
7707021	COUNSELOR OFFICE	2015-12-21 @ 1:00 pm	2015-12-24 @ 9:00 am	2.5 ± 0.4	2015-12-28
7707091	FRONT DESK	2015-12-21 @ 10:00 am	2015-12-24 @ 8:00 am	1.1 ± 0.3	2015-12-28
7707059	GYM	2015-12-21 @ 1:00 pm	2015-12-24 @ 9:00 am	0.8 ± 0.3	2015-12-29
7707020	GYM	2015-12-21 @ 1:00 pm	2015-12-24 @ 9:00 am	< 0.3	2015-12-29
7707062	GYM OFFICE	2015-12-21 @ 1:00 pm	2015-12-24 @ 9:00 am	9.8 ± 0.7	2015-12-28

January 12, 2016 **LABORATORY ANALYSIS REPORT ****

Radon test result report for:
BLAIR G. EWING CENTER
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7707060	HEALTH RM	2015-12-21 @ 2:00 pm	2015-12-24 @ 9:00 am	4.8 ± 0.5	2015-12-28
7707073	HEALTH RM OFFICE	2015-12-21 @ 2:00 pm	2015-12-24 @ 9:00 am	1.4 ± 0.3	2015-12-28
7707010	L10	2015-12-21 @ 4:00 pm	2015-12-24 @ 10:00 am	0.9 ± 0.3	2015-12-29
7707108	L11	2015-12-21 @ 4:00 pm	2015-12-24 @ 10:00 am	0.8 ± 0.3	2015-12-28
7707009	L12	2015-12-21 @ 4:00 pm	2015-12-24 @ 10:00 am	0.9 ± 0.3	2015-12-29
7707002	L12 OFFICE	2015-12-21 @ 4:00 pm	2015-12-24 @ 10:00 am	1.2 ± 0.3	2015-12-28
7707004	L12 OFFICE	2015-12-21 @ 4:00 pm	2015-12-24 @ 10:00 am	0.9 ± 0.3	2015-12-29
7707098	L13	2015-12-21 @ 4:00 pm	2015-12-24 @ 10:00 am	2.6 ± 0.4	2015-12-28
7707003	L14	2015-12-21 @ 4:00 pm	2015-12-24 @ 10:00 am	1.4 ± 0.3	2015-12-29
7707096	L15	2015-12-21 @ 5:00 pm	2015-12-24 @ 10:00 am	0.9 ± 0.3	2015-12-28
7707001	L16	2015-12-21 @ 4:00 pm	2015-12-24 @ 10:00 am	1.6 ± 0.3	2015-12-28
7707083	L16 CONFER. RM	2015-12-21 @ 4:00 pm	2015-12-24 @ 10:00 am	1.8 ± 0.3	2015-12-28
7707103	L17	2015-12-21 @ 5:00 pm	2015-12-24 @ 10:00 am	1.0 ± 0.3	2015-12-29
7707104	L17	2015-12-21 @ 5:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-29
7707107	L17	2015-12-21 @ 5:00 pm	2015-12-24 @ 10:00 am	1.0 ± 0.3	2015-12-29
7707086	L17 OFFICE	2015-12-21 @ 5:00 pm	2015-12-24 @ 10:00 am	1.2 ± 0.3	2015-12-28
7707101	L3	2015-12-21 @ 5:00 pm	2015-12-24 @ 10:00 am	0.9 ± 0.3	2015-12-28
7707076	L4	2015-12-21 @ 4:00 pm	2015-12-24 @ 10:00 am	0.8 ± 0.3	2015-12-28
7707092	L5	2015-12-21 @ 5:00 pm	2015-12-24 @ 10:00 am	1.0 ± 0.3	2015-12-29
7707102	L7	2015-12-21 @ 5:00 pm	2015-12-24 @ 10:00 am	0.6 ± 0.3	2015-12-28
7707111	L7 OFFICE	2015-12-21 @ 5:00 pm	2015-12-24 @ 10:00 am	0.7 ± 0.3	2015-12-29
7707006	L8	2015-12-21 @ 4:00 pm	2015-12-24 @ 10:00 am	1.2 ± 0.3	2015-12-28
7707066	L8 OFFICE	2015-12-21 @ 4:00 pm	2015-12-24 @ 10:00 am	1.7 ± 0.4	2015-12-29
7707097	L9	2015-12-21 @ 4:00 pm	2015-12-24 @ 10:00 am	1.2 ± 0.3	2015-12-28
7707099	L9	2015-12-21 @ 4:00 pm	2015-12-24 @ 10:00 am	1.2 ± 0.3	2015-12-29
7707053	M10	2015-12-21 @ 3:00 pm	2015-12-24 @ 10:00 am	0.8 ± 0.3	2015-12-28
7707072	M11	2015-12-21 @ 3:00 pm	2015-12-24 @ 10:00 am	1.7 ± 0.3	2015-12-28
7707011	M11 OFFICE	2015-12-21 @ 3:00 pm	2015-12-24 @ 10:00 am	0.8 ± 0.3	2015-12-28
7707007	M12	2015-12-21 @ 3:00 pm	2015-12-24 @ 10:00 am	3.3 ± 0.4	2015-12-28
7707014	M12 OFFICE	2015-12-21 @ 3:00 pm	2015-12-24 @ 10:00 am	1.5 ± 0.3	2015-12-28
7707069	M13	2015-12-21 @ 3:00 pm	2015-12-24 @ 10:00 am	1.4 ± 0.3	2015-12-28
7707012	M14	2015-12-21 @ 3:00 pm	2015-12-24 @ 10:00 am	1.3 ± 0.3	2015-12-28
7707054	M14	2015-12-21 @ 3:00 pm	2015-12-24 @ 10:00 am	1.1 ± 0.3	2015-12-29
7707015	M15	2015-12-21 @ 3:00 pm	2015-12-24 @ 10:00 am	0.8 ± 0.3	2015-12-29
7707018	M16	2015-12-21 @ 3:00 pm	2015-12-24 @ 10:00 am	1.5 ± 0.4	2015-12-29
7707042	M17	2015-12-21 @ 3:00 pm	2015-12-24 @ 10:00 am	0.9 ± 0.4	2015-12-29
7707047	M17 OFFICE	2015-12-21 @ 3:00 pm	2015-12-24 @ 10:00 am	0.9 ± 0.3	2015-12-28

January 12, 2016 **LABORATORY ANALYSIS REPORT ****

Radon test result report for:
BLAIR G. EWING CENTER
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7707008	M2	2015-12-21 @ 2:00 pm	2015-12-24 @ 9:00 am	0.9 ± 0.3	2015-12-28
7707074	M3	2015-12-21 @ 4:00 pm	2015-12-24 @ 10:00 am	1.4 ± 0.4	2015-12-29
7707016	M4	2015-12-21 @ 2:00 pm	2015-12-24 @ 9:00 am	1.1 ± 0.3	2015-12-28
7707037	M4	2015-12-21 @ 2:00 pm	2015-12-24 @ 9:00 am	1.1 ± 0.3	2015-12-28
7707071	M5	2015-12-21 @ 3:00 pm	2015-12-24 @ 10:00 am	1.0 ± 0.3	2015-12-29
7707013	M5 OFFICE	2015-12-21 @ 3:00 pm	2015-12-24 @ 10:00 am	0.6 ± 0.3	2015-12-28
7707058	M6	2015-12-21 @ 2:00 pm	2015-12-24 @ 9:00 am	0.8 ± 0.3	2015-12-28
7707068	M6	2015-12-21 @ 2:00 pm	2015-12-24 @ 9:00 am	< 0.3	2015-12-29
7707084	M7	2015-12-21 @ 3:00 pm	2015-12-24 @ 10:00 am	1.8 ± 0.4	2015-12-29
7707017	M8	2015-12-21 @ 2:00 pm	2015-12-24 @ 9:00 am	0.9 ± 0.3	2015-12-29
7707019	M8	2015-12-21 @ 2:00 pm	2015-12-24 @ 9:00 am	0.8 ± 0.3	2015-12-29
7707063	M8 TEACHER RM	2015-12-21 @ 3:00 pm	2015-12-24 @ 9:00 am	1.0 ± 0.3	2015-12-29
7707005	M9	2015-12-21 @ 3:00 pm	2015-12-24 @ 10:00 am	1.5 ± 0.3	2015-12-29
7707080	MPR	2015-12-21 @ 12:00 pm	2015-12-24 @ 8:00 am	1.3 ± 0.3	2015-12-28
7707070	PRINCIPAL OFFICE	2015-12-21 @ 11:00 am	2015-12-24 @ 8:00 am	0.6 ± 0.3	2015-12-28
7707110	RC-6	2015-12-21 @ 5:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-29
7707105	RC1	2015-12-21 @ 5:00 pm	2015-12-24 @ 10:00 am	0.7 ± 0.3	2015-12-29
7707056	RC10	2015-12-21 @ 2:00 pm	2015-12-24 @ 9:00 am	1.5 ± 0.4	2015-12-28
7707112	RC2	2015-12-21 @ 5:00 pm	2015-12-24 @ 10:00 am	0.5 ± 0.3	2015-12-28
7707109	RC3	2015-12-21 @ 5:00 pm	2015-12-24 @ 10:00 am	0.6 ± 0.3	2015-12-29
7707106	RC7	2015-12-21 @ 5:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-29
7707088	RC8	2015-12-21 @ 5:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7707031	SM DINNING RM	2015-12-21 @ 12:00 pm	2015-12-24 @ 8:00 am	< 0.3	2015-12-28
7707035	STAFF LOUNGE	2015-12-21 @ 11:00 am	2015-12-24 @ 8:00 am	0.7 ± 0.3	2015-12-29
7707027	U1	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	0.9 ± 0.3	2015-12-28
7707052	U10	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	2.1 ± 0.4	2015-12-28
7707061	U10 OFFICE	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	0.9 ± 0.3	2015-12-28
7707030	U10 OFFICE	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	0.7 ± 0.3	2015-12-28
7707034	U12	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	1.3 ± 0.4	2015-12-29
7707026	U3	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	2.4 ± 0.4	2015-12-28
7707032	U3	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7707093	U3	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	2.1 ± 0.4	2015-12-28
7707033	U3 OFFICE	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	2.0 ± 0.4	2015-12-28
7707079	U4	2015-12-21 @ 12:00 pm	2015-12-24 @ 8:00 am	1.8 ± 0.4	2015-12-28
7707028	U5	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	2.6 ± 0.4	2015-12-28
7707067	U6	2015-12-21 @ 12:00 pm	2015-12-24 @ 8:00 am	1.7 ± 0.3	2015-12-28
7707024	U7A	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	1.4 ± 0.3	2015-12-28

January 12, 2016
**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
**BLAIR G. EWING CENTER
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7707029	U7B	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	0.7 ± 0.3	2015-12-28

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

December
29,
2015

**LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
TRANSIT DEC 14 2015
NONE

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704395	TRANSIT 1	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706508	TRANSIT 10	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706510	TRANSIT 11	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706511	TRANSIT 12	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706505	TRANSIT 13	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7704371	TRANSIT 14	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706506	TRANSIT 15	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7704381	TRANSIT 16	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7704399	TRANSIT 17	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7704390	TRANSIT 18	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7704396	TRANSIT 2	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7704364	TRANSIT 3	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7704370	TRANSIT 4	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7704368	TRANSIT 5	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706524	TRANSIT 6	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706526	TRANSIT 7	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706518	TRANSIT 8	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706516	TRANSIT 9	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16

December
23,
2015

**LABORATORY ANALYSIS
REPORT ****

Spike Sample Laboratory Results

Radon test result report for:

MCPS

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 173224

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

Date Start: 12/18/15 Date Stop: 12/21/15 Date Start: _____ Date Stop: _____

Time Start: 0929 Time Stop: 0929 Time Start: _____ Time Stop: _____

Device No.'s: 7705132, 7706208, Device No.'s: _____

7706211, 7706366, _____

7706380, 7706381 _____

F3 Left

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

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

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

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

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

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

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



Chain of Custody

Project Name: MCPS Radon Phase II

School Names:

- | | | |
|---------------------------|-----------------------------|---------------------------|
| 1. Bannockburn ES | 11. Sherwood HS | 21. Fairland ES |
| 2. Walt Whitman HS | 12. Hadley Farms | 22. Cannon Road ES |
| 3. Walter Johnson HS | 13. S. Christa McAuliffe ES | 23. Richard Montgomery HS |
| 4. North Chevy Chase ES | 14. Ronald A. McNair ES | 24. Brooke Grove ES |
| 5. Piney Branch ES | 15. MLK MS | 25. Belmont ES |
| 6. Forest Knolls ES | 16. Ashburton ES | 26. Emory Grove |
| 7. Newport Mill MS | 17. Bradley Hills ES | 27. Clarksburg HS |
| 8. Broad Acres ES | 18. Flora M. Singer ES | 28. Clarksburg ES |
| 9. Briggs Chaney MS | 19. Woodlin ES | 29. John T. Baker MS |
| 10. Blair G. Ewing Center | 20. Montgomery Knolls ES | |

	Date	Initials
Radon Test Kits Deployed	12/21/2015	JM
Radon Test Kits Collected	12/24/2015	JM
Radon Test Kits Shipped to Lab*	12/24/2015	JM
Radon Test Kits Received by Lab*	12/28/2015	JM

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