



MONTGOMERY COUNTY PUBLIC SCHOOLS RADON TESTING

Executive Summary: Highland View Elementary School

9010 Providence Avenue
Silver Spring, MD 20901

Date of Test Report:	1/15/2019
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:	31
# of Rooms \geq 4.0 pCi/L:	0
Low Value:	< 0.4
High Value:	3.2

Project Status

Initial testing complete: No further action at this time



January 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: Highland View Elementary School
9010 Providence Avenue
Silver Spring, MD 20901

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 Highland View Elementary School, located at 9010 Providence Avenue, Silver Spring, MD 20901 (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 November 13, 2018 and deployed forty-three (43) 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. 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 returned to the site on November 16, 2018 to retrieve the radon sampling test kits. 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		
Highland View ES Elementary School		
Testing period: 11/13/18 - 11/16/18		
Kit Number	Room / Area	Result (pCi/L)
3918936	1	0.8
3918938	2	1.2
3918939	3	< 0.4
3918940	5	< 0.4
3918941	7	< 0.4
3918942	8	0.7
3918943	9	0.4
3918944	14	< 0.4
3918946	15	0.6
3918947	21	0.5
3918948	22	0.5
3918949	23	0.6
3918933	101	< 0.4
3918925	102A	0.9
3918926	102C	1.0
3918927	102E	1.0
3918928	102F	0.8
3918932	105	0.7
3918884	204	0.5
3918886	212	0.7
3918887	311	0.5
3881241	APR	0.6
3881171	APR	0.5
3918935	APR - Stage	0.7
3918931	Art	0.7
3918945	Auxillary Music Room	1.0
3918881	Gym	3.2
3918882	Gym	2.6
3918883	Gym Office	2.4
3918921	Health	0.9
3918922	Health Office	1.0
3918934	Kitchen	0.5
3918923	Main Office	1.0
3918929	Staff Lounge	0.8

Radon Testing Results		
Highland View Elementary School		
Testing period: 11/13/18 - 11/16/18		
Kit Number	QC Type	Result (pCi/L)
3918937	1 (D)	0.9
3918950	23 (D)	0.5
3918885	204 (D)	< 0.4
3918924	Main Office (D)	1.1
3918930	Staff Lounge (D)	1.1
3918825	Field Blank	< 0.4
3918815	Field Blank	< 0.4
3917864	Office Blank	< 0.4
3918824	Transit Blank	< 0.4

Table Notes:

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

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 Highland View ES
Not Indicated
Silver Spring MD 20901

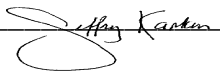
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3195646	3918921	11/13/2018 4:37 pm	11/16/2018 1:00 pm	Floor Main Room Health	0.9
3195647	3918922	11/13/2018 4:38 pm	11/16/2018 1:01 pm	Floor Main Room Health Office	1.0
3195648	3918923	11/13/2018 4:39 pm	11/16/2018 1:03 pm	Floor Main Room Main Office	1.0
3195649	3918924	11/13/2018 4:39 pm	11/16/2018 1:03 pm	Floor Main Room Main Office Duplicate	1.1
3195650	3918925	11/13/2018 4:41 pm	11/16/2018 1:04 pm	Floor Main Room 102A	0.9
3195651	3918926	11/13/2018 4:43 pm	11/16/2018 1:05 pm	Floor Main Room 102C	1.0
3195652	3918927	11/13/2018 4:45 pm	11/16/2018 1:06 pm	Floor Main Room 102E	1.0
3195653	3918928	11/13/2018 4:47 pm	11/16/2018 1:07 pm	Floor Main Room 102F	0.8
3195654	3918929	11/13/2018 4:50 pm	11/16/2018 1:09 pm	Floor Main Room Staff Lounge	0.8
3195655	3918930	11/13/2018 4:50 pm	11/16/2018 1:09 pm	Floor Main Room Staff Lounge Duplicate	1.1

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

Test Performed By: Not Indicated

Distributed by: Intertek-PSI (VA)

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

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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

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

NRPP 105011 AL
NRSB ARL0007

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 Highland View ES
Not Indicated
Silver Spring MD 20901

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3195656	3918931	11/13/2018 4:52 pm	11/16/2018 1:10 pm	Floor Main Room Art	0.7
3195657	3918932	11/13/2018 4:54 pm	11/16/2018 1:11 pm	Floor Main Room 105	0.7
3195658	3918933	11/13/2018 4:58 pm	11/16/2018 1:12 pm	Floor Main Room 101	< 0.4
3195659	3918934	11/13/2018 5:00 pm	11/16/2018 1:13 pm	Floor Main Room Kitchen	0.5
3195660	3918935	11/13/2018 5:05 pm	11/16/2018 1:14 pm	Floor Main Room APR	0.7
3195661	3918936	11/13/2018 5:15 pm	11/16/2018 1:18 pm	Floor Lower Room 1	0.8
3195662	3918937	11/13/2018 5:15 pm	11/16/2018 1:18 pm	Floor Lower Room 1 Duplicate	0.9
3195663	3918938	11/13/2018 5:16 pm	11/16/2018 1:19 pm	Floor Lower Room 2	1.2
3195664	3918939	11/13/2018 5:17 pm	11/16/2018 1:20 pm	Floor Lower Room 3	< 0.4
3195665	3918940	11/13/2018 5:18 pm	11/16/2018 1:21 pm	Floor Lower Room 5	< 0.4

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

Test Performed By: Not Indicated

Distributed by: Intertek-PSI (VA)

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

Report Reviewed By: 

Report Approved By: 

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NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Highland View ES
Not Indicated
Silver Spring MD 20901

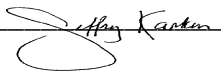
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3195666	3918941	11/13/2018 5:19 pm	11/16/2018 1:22 pm	Floor Lower Room 7	< 0.4
3195667	3918942	11/13/2018 5:21 pm	11/16/2018 1:23 pm	Floor Lower Room 8	0.7
3195668	3918943	11/13/2018 5:23 pm	11/16/2018 1:24 pm	Floor Lower Room 9	0.4
3195669	3918944	11/13/2018 5:25 pm	11/16/2018 1:25 pm	Floor Lower Room 14	< 0.4
3195670	3918945	11/13/2018 5:27 pm	11/16/2018 1:26 pm	Floor Lower Room Auxillary Music	1.0
3195671	3918946	11/13/2018 5:28 pm	11/16/2018 1:27 pm	Floor Lower Room 15	0.6
3195672	3918947	11/13/2018 5:30 pm	11/16/2018 1:28 pm	Floor Lower Room 21	0.5
3195673	3918948	11/13/2018 5:35 pm	11/16/2018 1:29 pm	Floor Lower Room 22	0.5
3195674	3918949	11/13/2018 5:37 pm	11/16/2018 1:31 pm	Floor Lower Room 23	0.6
3195675	3918950	11/13/2018 5:37 pm	11/16/2018 1:31 pm	Floor Lower Room 23 Duplicate	0.5

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

Test Performed By: Not Indicated

Distributed by: Intertek-PSI (VA)

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

Report Reviewed By: 

Report Approved By: 

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NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Highland View ES
Not Indicated
Silver Spring MD 20901

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3195676	3918881	11/13/2018 5:45 pm	11/16/2018 1:32 pm	Floor Lower Room Gym	3.2
3195677	3918882	11/13/2018 5:45 pm	11/16/2018 1:33 pm	Floor Lower Room Gym	2.6
3195678	3918883	11/13/2018 5:48 pm	11/16/2018 1:34 pm	Floor Lower Room Gym Office	2.4
3195679	3918884	11/13/2018 5:55 pm	11/16/2018 1:35 pm	Floor Second Room 204	0.5
3195680	3918885	11/13/2018 5:55 pm	11/16/2018 1:36 pm	Floor Second Room 204	< 0.4
3195681	3918886	11/13/2018 5:58 pm	11/16/2018 1:37 pm	Floor Second Room 212	0.7
3195682	3918887	11/13/2018 6:01 pm	11/16/2018 1:38 pm	Floor Third Room 311	0.5
3195683	3917864	11/13/2018 6:00 am	11/16/2018 4:00 pm	Floor NA Room Office Blank	< 0.4
3195684	3918824	11/13/2018 6:00 am	11/16/2018 4:00 pm	Floor NA Room Transit Blank	< 0.4
3195685	3918825	11/13/2018 4:37 pm	11/16/2018 1:38 pm	Floor NA Field Blank	< 0.4

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

Test Performed By: Not Indicated

Distributed by: Intertek-PSI (VA)

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

Report Reviewed By: 

Report Approved By: 

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NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Highland View ES
Not Indicated
Silver Spring MD 20901

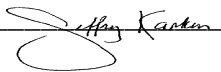
Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3195686	3918815	11/13/2018 4:37 pm 11/16/2018 1:38 pm	Floor NA Field Blank	< 0.4

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

Test Performed By: Not Indicated

Distributed by: Intertek-PSI (VA)

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

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey
Highland View ES
Silver Spring MD 20901

Log Number	Device Number	Test Date	Exposure Duration	Area Tested	Result pCi/L
2393044	3881241	11/13/2018	5:06 pm - 11/16/2018 1:17 pm	Floor Main Room APR	0.6
2393045	3881171	11/13/2018	5:07 pm - 11/16/2018 1:15 pm	Floor Main Room APR	0.5

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

Distributed by: Intertek-PSI (VA)

Date Received: 11/17/2018 Date Logged: 11/17/2018 Date Analyzed: 11/19/2018 Date Reported: 01/04/2019

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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NRPP 105011 AL
NRSB ARL0007
Ohio RL41

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

Laboratory Report for:

Property Tested:

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

MCPS Radon Survey
4514 Taylorsville Road
Dayton OH 45424

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

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

Test Performed By: Unknown

Distributed by: Intertek-PSI (VA)

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

Report Reviewed By: 

Report Approved By: 

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

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

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



MCPS RADON TESTING

Executive Summary: Highland View Elementary School

Date of Test Report:	2/23/2016 (Rev 2)
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	28
# Rooms \geq 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	3.2

Project Status:

Initial testing completed; no further action at this time.



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 # 12146341.19

Location: Highland View Elementary School
9010 Providence Avenue
Silver Spring, MD 20901

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) pursuant to completing a “short-term” 3 day radon test for the Damascus Elementary School, located at 9010 Providence Avenue in Silver Spring, Maryland 20901 (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 15, 2016 and deployed thirty-eight (38) 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 18, 2016 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936

Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

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	none	n/a
< 4.0 pCi/L	See Attachment B	

Notes:
D- Duplicate sample

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

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

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

Sincerely,



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

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Radon Testing Results		
Highland View Es		
Test Period: 12/15/15-12/18/15		
Kit Number	Room / Area	Result
7704168	1	1.7
7704102	2	1.2
7705174	3	< 0.3
7704107	5	< 0.3
7704103	7	1.0
7704104	8	1.0
7705172	9	1.0
7705175	14	1.4
7704109	15	0.7
7704110	21	0.9
7704161	22	0.6
7704166	23	0.8
7704155	101	0.9
7704106	104	1.2
7704170	105	< 0.3
7704156	206	0.8
7704163	213	< 0.3
7704164	309	0.6
7704200	102-A	0.8
7704158	102-B	1.1
7704150	102-C	1.2
7704154	102-E	1.0
7704169	102-F	< 0.3
7704152	CAFE	< 0.3
7704151	CAFE	0.8
7704105	GYM	3.2
7704101	GYM	2.6
7704199	MAIN OFFICE	1.1
7704159	OT	1.8
7704160	STAFF LOUNGE	0.8

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Highland View Es		
Test Period: 12/15/15-12/18/15		
Kit Number	QC Type	Result
7704167	D (1)	1.6
7705170	D (15)	0.8
7704153	D (309)	1.0
7704165	D (STAFF LOUNGE)	1.1
7704198	FB (102-E)	< 0.3
7705167	FB (14)	< 0.3
7704162	FB (23)	< 0.3
7704393	OB (OFFICE BLANK)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

December 30, 2015
LABORATORY ANALYSIS REPORT **

Radon test result report for:
HIGHLAND VIEW ES
HIGHLAND VIEW

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704167	1	2015-12-15 @ 1:00 pm	2015-12-18 @ 9:00 am	1.6 ± 0.4	2015-12-22
7704168	1	2015-12-15 @ 1:00 pm	2015-12-18 @ 9:00 am	1.7 ± 0.4	2015-12-22
7704155	101	2015-12-15 @ 2:00 pm	2015-12-18 @ 10:00 am	0.9 ± 0.3	2015-12-22
7704200	102-A	2015-12-15 @ 1:00 pm	2015-12-18 @ 10:00 am	0.8 ± 0.3	2015-12-22
7704158	102-B	2015-12-15 @ 1:00 pm	2015-12-18 @ 10:00 am	1.1 ± 0.3	2015-12-22
7704150	102-C	2015-12-15 @ 1:00 pm	2015-12-18 @ 10:00 am	1.2 ± 0.4	2015-12-22
7704154	102-E	2015-12-15 @ 1:00 pm	2015-12-18 @ 10:00 am	1.0 ± 0.3	2015-12-22
7704198	102-E	2015-12-15 @ 1:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22
7704169	102-F	2015-12-15 @ 1:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22
7704106	104	2015-12-15 @ 1:00 pm	2015-12-18 @ 10:00 am	1.2 ± 0.3	2015-12-22
7704170	105	2015-12-15 @ 1:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22
7705175	14	2015-12-15 @ 12:00 pm	2015-12-18 @ 9:00 am	1.4 ± 0.3	2015-12-22
7705167	14	2015-12-15 @ 12:00 pm	2015-12-18 @ 9:00 am	< 0.3	2015-12-22
7704109	15	2015-12-15 @ 12:00 pm	2015-12-18 @ 10:00 am	0.7 ± 0.3	2015-12-22
7705170	15	2015-12-15 @ 12:00 pm	2015-12-18 @ 9:00 am	0.8 ± 0.3	2015-12-22
7704102	2	2015-12-15 @ 12:00 pm	2015-12-18 @ 9:00 am	1.2 ± 0.3	2015-12-22
7704156	206	2015-12-15 @ 1:00 pm	2015-12-18 @ 10:00 am	0.8 ± 0.3	2015-12-22
7704110	21	2015-12-15 @ 1:00 pm	2015-12-18 @ 10:00 am	0.9 ± 0.3	2015-12-22
7704163	213	2015-12-15 @ 1:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22
7704161	22	2015-12-15 @ 1:00 pm	2015-12-18 @ 10:00 am	0.6 ± 0.3	2015-12-22
7704162	23	2015-12-15 @ 1:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22
7704166	23	2015-12-15 @ 1:00 pm	2015-12-18 @ 10:00 am	0.8 ± 0.3	2015-12-22
7705174	3	2015-12-15 @ 12:00 pm	2015-12-18 @ 9:00 am	< 0.3	2015-12-22
7704153	309	2015-12-15 @ 2:00 pm	2015-12-18 @ 10:00 am	1.0 ± 0.3	2015-12-22
7704164	309	2015-12-15 @ 2:00 pm	2015-12-18 @ 10:00 am	0.6 ± 0.3	2015-12-22
7704107	5	2015-12-15 @ 12:00 pm	2015-12-18 @ 9:00 am	< 0.3	2015-12-22
7704103	7	2015-12-15 @ 12:00 pm	2015-12-18 @ 9:00 am	1.0 ± 0.3	2015-12-22
7704104	8	2015-12-15 @ 12:00 pm	2015-12-18 @ 9:00 am	1.0 ± 0.3	2015-12-22
7705172	9	2015-12-15 @ 12:00 pm	2015-12-18 @ 9:00 am	1.0 ± 0.3	2015-12-22
7704151	CAFE	2015-12-15 @ 2:00 pm	2015-12-18 @ 10:00 am	0.8 ± 0.4	2015-12-22
7704152	CAFE	2015-12-15 @ 2:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22
7704101	GYM	2015-12-15 @ 1:00 pm	2015-12-18 @ 10:00 am	2.6 ± 0.4	2015-12-22
7704105	GYM	2015-12-15 @ 1:00 pm	2015-12-18 @ 10:00 am	3.2 ± 0.4	2015-12-22
7704199	MAIN OFFICE	2015-12-15 @ 1:00 pm	2015-12-18 @ 10:00 am	1.1 ± 0.3	2015-12-22
7704159	OT	2015-12-15 @ 1:00 pm	2015-12-18 @ 10:00 am	1.8 ± 0.4	2015-12-22
7704160	STAFF LOUNGE	2015-12-15 @ 1:00 pm	2015-12-18 @ 10:00 am	0.8 ± 0.3	2015-12-22
7704165	STAFF LOUNGE	2015-12-15 @ 1:00 pm	2015-12-18 @ 10:00 am	1.1 ± 0.3	2015-12-22

December
30,
2015

**** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**HIGHLAND VIEW ES
OFFICE BLANK**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704393	OFFICE BLANK	2015-12-15 @ 3:00 pm	2015-12-18 @ 3:00 pm	< 0.3	2015-12-22

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**



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase I

Name of Schools:

- | | | | |
|----------------------------|------------------------|------------------------|-----------------------|
| 1. Westland M.S. | 6. South Lake E.S. | 11. Highland View E.S. | 16. Ridgeview M.S. |
| 2. East Silver Spring E.S. | 7. Jones Lane E.S. | 12. Cresthaven E.S. | 17. Rockwell E.S. |
| 3. Oakland Terrace E.S. | 8. Quince Orchard H.S. | 13. Viers Mill E.S. | 18. Oak View E.S. |
| 4. Rocking Horse Road E.S. | 9. Damascus E.S. | 14. Smith Center | 19. Jackson Road E.S. |
| 5. Beall E.S. | 10. Westbrooke E.S. | 15. Rosemont E.S. | 20. Highland E.S. |
| | | | 21. Watkins Mill E.S. |

	Date	Initials
Radon Test Kits Deployed	12/15/15	KM
Radon Test Kits Collected	12/18/15	KM
Radon Test Kits Shipped to Lab*	12/18/15	KM
Radon Test Kits Received by Lab*	12/22/15	KM

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

M. A. CECIL & ASSOCIATES, INC.

4475 Shannon Way, Port Republic, Maryland 20676 (301) 855-7710
INDUSTRIAL HYGIENE AND ENVIRONMENTAL HEALTH

November 30, 2015

Mr. Sean Yarup
Montgomery County Public Schools
16651 Crabbs Branch Way
Rockville, Maryland 20855

Re: Radon Evaluation- Highland Elementary School

Dear Mr. Yarup:

Environmental radon testing has been completed at Highland Elementary School.

A charcoal canister was placed in the gym of school as a follow-up to a previously completed survey. The canister was placed on November 13, 2015 and retrieved on November 16, 2015. The detected radon concentration (2.8) was below the EPA recommended level of 4.0 pico curries per liter (pCi/l) of air.

Should you have any questions concerning this report please do not hesitate to contact us.

Sincerely,

Michael A. Cecil
Michael A. Cecil, CIH

A.B.E. Radiation Measurements Laboratory

Division of Health Physics Associates, Inc.

1005 Old 22 PO Box 214 Lenhartsville, PA 19534

dee@radprotection.com

(610) 756-4153 (Voice) (610) 756-0042 (FAX)

November 24, 2015

MA Cecil & Associates, Inc.
4475 Shannon Way
Port Republic, MD 20676

Attn: Kimberly Tayman

re: **Radon Sampling**, Highland Elementary School,
3100 Medway St., Silver Spring, MD 20902.

Dates of tests: November 13 to 16, 2015

Chamber Spikes: 2.9 % Deviation; September 19 to 21, 2015

Dear Ms. Tayman:

The following is a report of the radon sampling your company conducted at the referenced property using activated charcoal. The charcoal analysis procedures have passed the US EPA's Radon Measurement Proficiency Testing program, and A.B.E. Radiation Measurements Lab is certified by the PA DEP as a laboratory (certification number 0048). The table lists each sample location and the net radon levels in picocuries per liter (pCi/l). Screening testing should be conducted under "closed house" conditions; however, A.B.E. Radiation Measurements Laboratory has no control over how the test device is treated in our absence or the degree of ventilation at the property over the course of the test.

Canister Number	Location	Start Time	End Time	pCi/l
172523	Gym	15:08	08:33	2.8

CONCLUSIONS

The radon concentration measured during the test was below the US EPA screening guideline of less than 4.0 pCi/l and remedial action to reduce the radon concentration is not indicated based on the results of this test. Because of the variability of radon air concentrations over the course of a year, follow-up biannual testing during a different season, under occupied conditions, is recommended to better estimate the annual average air concentrations.

The results of this test are valid only for the date, time and conditions under which the test was conducted and only for the client ordering the test.

Should you wish to discuss this report, please do not hesitate to contact us at (610) 756-4153.

Thank you for the opportunity to serve you.

Sincerely,



A. LaMastra
President