



MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	Woodfield Elementary School
Date of Test Report	2/16/2023
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	46
# Rooms \geq 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	2.7 pCi/L

Project Status:

1. 5-Year retesting completed.



February 16, 2023

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

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

Location: Woodfield Elementary School
24200 Woodfield Rd.
Gaithersburg, MD 20882

Dear Mr. Croyle:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to Montgomery County Public Schools (MCPS) pursuant to completing a “short-term” 3 day radon test for the Woodfield Elementary School, located at 24200 Woodfield Rd. Gaithersburg, MD 20882 (subject site).

Scope of Services:

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

KCI visited the site on January 10, 2023 and deployed fifty-three (53) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

KCI returned to the site on January 13, 2023 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Accustar Labs - MA for analysis by gamma-ray spectroscopy.

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

Evaluation of Testing Conditions:

These tests represent:

- Follow up to initial testing.

These tests were conducted to:

- Evaluate radon concentration levels at the facility.

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate temperatures ranged from the 26°F to the mid 56°F. Maximum sustained winds ranged from 0-21 miles per hour. Average humidity was around 68% with .09 inches of precipitation (rain) was recorded during testing period.

Results:

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

The results of the radon test analysis indicated the following:

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

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

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

Sincerely,



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

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Check, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

OC- Quality Control

Table 1- Radon Testing Results		
Woodfield ES		
Test Period: 01/10/2023 - 01/13/2023		
Kit Number	Room / Area	Result
11285898	1	1.1
11284882	2	1.2
11285897	2	< 0.3
11284845	3	0.7
11284878	3	0.8
11284880	4	1.2
11284873	5	1.2
11284879	6	0.8
11284891	7	0.7
11284892	8	1.2
11284884	9	1.0
11284874	10	1.6
11284887	11	1.0
11285900	13	2.7
11284889	14	1.2
11285896	15	1.8
11285899	16	1.1
11285151	17	1.6
11285161	18	1.3
11285174	19	0.6
11284893	20	1.0
11284877	21	1.4
11284883	21	1.0
11284876	22	0.9
11285136	22	< 0.3
11285145	23	1.2
11284896	30	1.4
11285894	31	1.4
11284888	32	1.5
11284890	32	1.4
11284852	1006	< 0.3
11284897	1014	< 0.3
11284851	1019	1.5
11284886	1019	1.8
11285890	12A	2.0
11284895	12B	1.2
11285895	16 OBSERVATION	1.6
11285143	APR	1.1
11285182	APR	1.5
11284900	ASA	1.6
11285144	BUILDING SERVICES	< 0.3
11285153	GYM	1.7

Table 1- Radon Testing Results		
Woodfield ES		
Test Period: 01/10/2023 - 01/13/2023		
Kit Number	Room / Area	Result
11285159	GYM	1.5
11285152	GYM OFFICE	1.7
11285889	HR	2.0
11284885	IMC	1.5
11284898	IMC	2.1
11285179	KITCHEN OFFICE	1.0
11284875	MAIN OFFICE	1.3
11285180	MAIN OFFICE	1.5
11284894	MEDIA WORKROOM	1.6
11285135	PRINCIPAL	1.6
11284881	SPEECH	0.8

Table 2- Radon Testing Results			
Woodfield ES			
Test Period: 01/10/23 - 01/13/23			
Kit Number	QC Type	Room / Area	Result
11285897	FB	2	< 0.3
11284878	D	3	0.8
11284883	D	21	1.0
11285136	FB	22	< 0.3
11284890	D	32	1.4
11284851	D	1019	1.5
11285180	D	Main Office	1.5
11285162	OB	OFFICE BLANK	< 0.3
11284899	TB	TRAVEL BLANK	< 0.3

Summary of Missed Locations		
Woodfield ES		
Test Period: 01/10/23 - 01/13/23		
Kit Number	Room/Area	Result
	N/A	

Summary of Missing, Compromised and ≥ 4 p _i C/L Tests		
Woodfield ES		
Test Period: 01/10/23 - 01/13/23		
Kit Number	Room/Area	Result
	N/A	

Table Note:
 * Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:**WOODFIELD ES****1**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11285898	1	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.1 ± 0.3	2023-01-16
11284874	10	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.6 ± 0.3	2023-01-16
11284852	1006	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	< 0.3	2023-01-16
11284897	1014	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	< 0.3	2023-01-16
11284851	1019	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.5 ± 0.3	2023-01-16
11284886	1019	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.8 ± 0.3	2023-01-16
11284887	11	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.0 ± 0.3	2023-01-16
11285890	12A	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	2.0 ± 0.3	2023-01-16
11284895	12B	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.2 ± 0.3	2023-01-16
11285900	13	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	2.7 ± 0.3	2023-01-16
11284889	14	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.2 ± 0.3	2023-01-16
11285896	15	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.8 ± 0.3	2023-01-16
11285899	16	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.1 ± 0.3	2023-01-16
11285895	16 OBSERVATION	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.6 ± 0.3	2023-01-16
11285151	17	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.6 ± 0.3	2023-01-16
11285161	18	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.3 ± 0.3	2023-01-16
11285174	19	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	0.6 ± 0.3	2023-01-16
11284882	2	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.2 ± 0.3	2023-01-16
11285897	2	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	< 0.3	2023-01-16
11284893	20	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.0 ± 0.3	2023-01-16
11284883	21	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.0 ± 0.3	2023-01-16
11284877	21	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.4 ± 0.3	2023-01-16
11284876	22	2023-01-10 @ 12:00 pm	2023-01-13 @ 10:00 am	0.9 ± 0.3	2023-01-16
11285136	22	2023-01-10 @ 12:00 pm	2023-01-13 @ 10:00 am	< 0.3	2023-01-16
11285145	23	2023-01-10 @ 12:00 pm	2023-01-13 @ 10:00 am	1.2 ± 0.3	2023-01-16
11284878	3	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	0.8 ± 0.3	2023-01-16
11284845	3	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	0.7 ± 0.3	2023-01-16
11284896	30	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.4 ± 0.3	2023-01-16
11285894	31	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.4 ± 0.3	2023-01-16
11284890	32	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.4 ± 0.3	2023-01-16
11284888	32	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.5 ± 0.3	2023-01-16
11284880	4	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.2 ± 0.3	2023-01-16
11284873	5	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.2 ± 0.3	2023-01-16
11284879	6	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	0.8 ± 0.3	2023-01-16
11284891	7	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	0.7 ± 0.3	2023-01-16
11284892	8	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.2 ± 0.3	2023-01-16
11284892	8	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.2 ± 0.3	2023-01-16

Radon test result report for:

WOODFIELD ES

1

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11284884	9	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.0 ± 0.3	2023-01-16
11285182	APR	2023-01-10 @ 12:00 pm	2023-01-13 @ 10:00 am	1.5 ± 0.3	2023-01-16
11285143	APR	2023-01-10 @ 12:00 pm	2023-01-13 @ 10:00 am	1.1 ± 0.3	2023-01-16
11284900	ASA	2023-01-10 @ 12:00 pm	2023-01-13 @ 10:00 am	1.6 ± 0.3	2023-01-16
11285144	BUILDING SERVICES	2023-01-10 @ 12:00 pm	2023-01-13 @ 10:00 am	< 0.3	2023-01-16
11285159	GYM	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.5 ± 0.3	2023-01-16
11285153	GYM	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.7 ± 0.3	2023-01-16
11285152	GYM OFFICE	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.7 ± 0.3	2023-01-16
11285889	HR	2023-01-10 @ 12:00 pm	2023-01-13 @ 10:00 am	2.0 ± 0.3	2023-01-16
11284898	IMC	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	2.1 ± 0.3	2023-01-16
11284885	IMC	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.5 ± 0.3	2023-01-16
11285179	KITCHEN OFFICE	2023-01-10 @ 12:00 pm	2023-01-13 @ 10:00 am	1.0 ± 0.3	2023-01-16
11284875	MAIN OFFICE	2023-01-10 @ 12:00 pm	2023-01-13 @ 10:00 am	1.3 ± 0.3	2023-01-16
11285180	MAIN OFFICE	2023-01-10 @ 12:00 pm	2023-01-13 @ 10:00 am	1.5 ± 0.3	2023-01-16
11284894	MEDIA WORKROOM	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	1.6 ± 0.3	2023-01-16
11285135	PRINCIPAL	2023-01-10 @ 12:00 pm	2023-01-13 @ 10:00 am	1.6 ± 0.3	2023-01-16
11284881	SPEECH	2023-01-10 @ 11:00 am	2023-01-13 @ 10:00 am	0.8 ± 0.3	2023-01-16

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KC1 TECHNOLOGIES, INC Job Number 208343

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

Date Start: 12/24/22 Date Stop: 12/27/22 Date Start: _____ Date Stop: _____

Time Start: 0810 Time Stop: 0810 Time Start: _____ Time Stop: _____

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

11285109, 11285110, 11285101

THRU 11285103

BY LEFT

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

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

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

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

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

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

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

December 29, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

OFFICE

MAIN

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

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Week 1 January Schools

Name of Schools:

1. Woodfield ES
2. Montgomery Village MS
3. Albert Einstein HS
4. Garrett Park Annex
5. Garrett Park ES
6. Kensington-Parkwood ES
7. Silver Creek MS
8. Stephen Knolls School
9. Highland View ES
10. MacDonald Knolls ECC
11. Montgomery Knolls ES
12. Rock Terrace HS

	Date	Initials
Radon Test Kits Deployed	01/10/2023	BMM
Radon Test Kits Collected	01/13/2023	BMM
Radon Test Kits Shipped to Lab*	01/13/2023	BMM
Radon Test Kits Received by Lab*	01/17/2023	BMM

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



MONTGOMERY COUNTY PUBLIC SCHOOLS RADON TESTING

Executive Summary:
Woodfield Elementary School
24200 Woodfield Road
Gaithersburg, MD 20882

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:	1.5
High Value:	1.5

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: Woodfield Elementary School
24200 Woodfield Road
Gaithersburg, MD 20882

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 Woodfield Elementary School, located at 24200 Woodfield Road, Gaithersburg, MD 20882 (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 1, 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.



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		
Woodfield Elementary School		
Testing period: 2/26/19 - 3/1/19		
Kit Number	Room / Area	Result (pCi/L)
3923324	ESOL	1.5

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

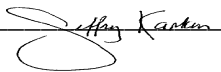
MCPS Radon Survey Woodfield ES
24200 Woodfield Road
Gaithersburg MD 20882

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
3220813	3923324	02/26/2019 1:15 pm 03/01/2019 11:31 am	Floor Main Level Room ESOL	1.5

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:
Woodfield Elementary School
24200 Woodfield Road
Gaithersburg, MD 20882

Date of Test Report:	02/05/2019
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:	46
# of Rooms \geq 4.0 pCi/L:	0
Low Value:	< 0.4
High Value:	1.6

Project Status

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



February 5, 2019

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

Re: Radon Testing Services

Location: Woodfield Elementary School
24200 Woodfield Road
Gaithersburg, MD 20882

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 Woodfield Elementary School, located at 24200 Woodfield Road, Gaithersburg, MD 20882 (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 03, 2018 and deployed fifty-seven (57) 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 06, 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		
Woodfield Elementary School		
Testing period: 12/03/18 - 12/06/18		
Kit Number	Room / Area	Result (pCi/L)
3926159	1	0.4
3926160	2	0.4
3925958	3	< 0.4
3925960	4	0.4
3925941	5	0.6
3925942	6	0.4
3925943	7	0.4
3925944	8	0.7
3925945	9	< 0.4
3925946	10	0.8
3925947	11	< 0.4
3926102	12A	1.2
3925950	12B	< 0.4
3925949	12C	0.5
3926103	13	1.6
3926104	14	0.5
3926105	15	0.9
3926122	15 Quiet Room	1.0
3926123	16	0.4
3926124	17	0.7
3926126	18	0.5
3926127	19	0.6
3926128	20	< 0.4
3926129	21	0.5
3926130	22	0.7
3926141	23	0.8
3926151	1002	0.4
3926157	1006	< 0.4
3926158	1007	2.2
3926107	1011	1.2
3926144	1012	0.5
3926156	1014	0.4
3926145	APR	1.1
3926108	Computer Lab	1.2
3926152	Conference	0.5
3925948	ESOL (TAMPERED)	1.4
3888407	GYM	1.6
3888348	GYM	1.6
3926154	Health Room	< 0.4
3926143	Kitchen	0.7
3926155	Main Office Workroom	0.5
3926109	Media Center	1.3
3926106	Media Office	1.3

Radon Testing Results		
Woodfield Elementary School		
Testing period: 12/03/18 - 12/06/18		
Kit Number	Room / Area	Result (pCi/L)
3926110	Media Workroom	1.2
3926125	PE Office	1.5
3926153	Principal Office	0.5
3888327	Stage	1.0
3926121	Workroom	1.4
3926146	Workroom 1009	0.5

Radon Testing Results		
Woodfield Elementary School		
Testing period: 12/03/18 - 12/06/18		
Kit Number	QC Type	Result (pCi/L)
3925959	3 (D)	< 0.4
3926101	12B (D)	< 0.4
3926142	23 (D)	1.0
3926121	Media Workroom (D)	1.4
3926653	Field Blank	< 0.4
3926652	Field Blank	< 0.4
3917352	Office Blank	< 0.4
3926661	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 Woodfield ES
24200 Woodfield Road
Gaithersburg MD 20882

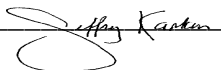
Log Number	Device Number	Test Date	Exposure Duration	Area Tested	Result pCi/L
3201948	3926105	12/03/2018	3:57 pm - 12/06/2018 1:51 pm	First Floor Room 15	0.9
3201949	3926121	12/03/2018	4:04 pm - 12/06/2018 2:00 pm	First Floor Room Workroom Duplicate	1.4
3201950	3926122	12/03/2018	4:06 pm - 12/06/2018 2:02 pm	First Floor Room 15	1.0
3201951	3926129	12/03/2018	4:18 pm - 12/06/2018 2:18 pm	First Floor Room 21	0.5
3201952	3926151	12/03/2018	3:26 pm - 12/06/2018 1:20 pm	First Floor Room 1002	0.4
3201953	3926160	12/03/2018	3:37 pm - 12/06/2018 1:29 pm	First Floor Room 2	0.4
3201954	3925943	12/03/2018	3:43 pm - 12/06/2018 1:35 pm	First Floor Room 7	0.4
3201955	3925949	12/03/2018	3:52 pm - 12/06/2018 1:44 pm	First Floor Room 12C	0.5
3201958	3926152	12/03/2018	3:27 pm - 12/06/2018 1:21 pm	Floor Ground Room Conference	0.5
3201959	3926153	12/03/2018	3:28 pm - 12/06/2018 1:22 pm	Floor Ground Room Principal Office	0.5
3201960	3926154	12/03/2018	3:29 pm - 12/06/2018 1:23 pm	Floor Ground Room Health	< 0.4


Comment: AMENDED REPORT on 2-5-19 to add several devices listed incorrectly from original datasheet.

Test Performed By: Lian Zadeng

Distributed by: Intertek-PSI (VA)

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

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

Disclaimer:

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NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Woodfield ES
24200 Woodfield Road
Gaithersburg MD 20882

Log Number	Device Number	Test Date	Exposure Duration	Area Tested	Result pCi/L
3201961	3926155	12/03/2018	3:31 pm 12/06/2018 1:23 pm	Floor Ground Workroom	0.5
3201962	3926156	12/03/2018	3:32 pm 12/06/2018 1:24 pm	Floor Ground Room 1014	0.4
3201963	3926157	12/03/2018	3:33 pm 12/06/2018 1:25 pm	Floor Ground Room 1006	< 0.4
3201964	3926158	12/03/2018	3:35 pm 12/06/2018 1:26 pm	Floor Ground Room 1007	2.2
3201965	3926159	12/03/2018	3:36 pm 12/06/2018 1:27 pm	Floor Ground Room 1	0.4
3201966	3925958	12/03/2018	3:39 pm 12/06/2018 1:30 pm	Floor Ground Room 3	< 0.4
3201967	3925959	12/03/2018	3:39 pm 12/06/2018 1:30 pm	Floor Ground Room 3 Duplicate	< 0.4
3201968	3925960	12/03/2018	3:40 pm 12/06/2018 1:31 pm	Floor Ground Room 4	0.4
3201969	3925941	12/03/2018	3:41 pm 12/06/2018 1:33 pm	Floor Ground Room 5	0.6
3201970	3925942	12/03/2018	3:42 pm 12/06/2018 1:34 pm	Floor Ground Room 6	0.4
3201971	3925944	12/03/2018	3:44 pm 12/06/2018 1:36 pm	Floor Ground Room 8	0.7

Comment: AMENDED REPORT on 2-5-19 to add several devices listed incorrectly from original datasheet.

Test Performed By: Lian Zadeng

Distributed by: Intertek-PSI (VA)

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

Report Reviewed By: 

Report Approved By: 

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NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Woodfield ES
24200 Woodfield Road
Gaithersburg MD 20882

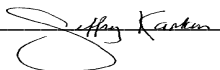
Log Number	Device Number	Test Date	Exposure Duration	Area Tested	Result pCi/L
3201972	3925945	12/03/2018	3:45 pm 12/06/2018 1:37 pm	Floor Ground Room 9	< 0.4
3201973	3925946	12/03/2018	3:47 pm 12/06/2018 1:38 pm	Floor Ground Room 10	0.8
3201974	3925947	12/03/2018	3:48 pm 12/06/2018 1:39 pm	Floor Ground Room 11	< 0.4
3201975	3926128	12/03/2018	4:17 pm 12/06/2018 2:16 pm	Floor Ground Room 20	< 0.4
3201976	3926130	12/03/2018	4:19 pm 12/06/2018 2:19 pm	Floor Ground Room 22	0.7
3201977	3926141	12/03/2018	4:20 pm 12/06/2018 2:22 pm	Floor Ground Room 23	0.8
3201978	3926142	12/03/2018	4:20 pm 12/06/2018 2:22 pm	Floor Ground Room 23 Duplicate	1.0
3201979	3926143	12/03/2018	4:23 pm 12/06/2018 2:23 pm	Floor Ground Room Kitchen	0.7
3201980	3926144	12/03/2018	4:25 pm 12/06/2018 2:24 pm	Floor Ground Room 1012	0.5
3201981	3926145	12/03/2018	4:27 pm 12/06/2018 2:26 pm	Floor Ground Room APR	1.1
3201982	3926146	12/03/2018	4:33 pm 12/06/2018 2:29 pm	Floor Ground Room Workroom 1009	0.5


Comment: AMENDED REPORT on 2-5-19 to add several devices listed incorrectly from original datasheet.

Test Performed By: Lian Zadeng

Distributed by: Intertek-PSI (VA)

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

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Woodfield ES
24200 Woodfield Road
Gaithersburg MD 20882

Log Number	Device Number	Test Exposure	Duration:	Area Tested	Result pCi/L
3201983	3926653	12/03/2018 3:26 pm	12/06/2018 2:29 pm	Floor Ground Blank	< 0.4
3201984	3926652	12/03/2018 3:26 pm	12/06/2018 2:29 pm	Floor Ground Blank	< 0.4
3201985	3926661	12/03/2018 6:00 am	12/06/2018 4:45 pm	Floor Ground Blank	< 0.4
3201986	3917532			Not Indicated	
3201987	3925948	12/03/2018 3:49 pm	12/06/2018 1:41 pm	Floor Ground Room ESOL	1.4
3201988	3925950	12/03/2018 3:51 pm	12/06/2018 1:42 pm	Floor Ground Room 12B	< 0.4
3201989	3926101	12/03/2018 3:51 pm	12/06/2018 1:42 pm	Floor Ground Room 12B Duplicate	< 0.4
3201990	3926102	12/03/2018 3:53 pm	12/06/2018 1:47 pm	Floor Ground Room 12A	1.2
3201991	3926103	12/03/2018 3:54 pm	12/06/2018 1:48 pm	Floor Ground Room 13	1.6
3201992	3926104	12/03/2018 3:56 pm	12/06/2018 1:49 pm	Floor Ground Room 14	0.5
3201993	3926106	12/03/2018 3:59 pm	12/06/2018 1:52 pm	Floor Ground Room Media Office	1.3

Comment: AMENDED REPORT on 2-5-19 to add several devices listed incorrectly from original datasheet.

Test Performed By: Lian Zadeng

Distributed by: Intertek-PSI (VA)

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

Report Reviewed By: 

Report Approved By: 

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NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Woodfield ES
24200 Woodfield Road
Gaithersburg MD 20882

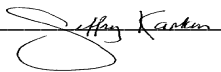
Log Number	Device Number	Test Date	Exposure Duration	Area Tested	Result pCi/L
3201994	3926107	12/03/2018	4:00 pm - 12/06/2018 1:53 pm	Floor Ground Room 1011	1.2
3201995	3926108	12/03/2018	4:02 pm - 12/06/2018 1:55 pm	Floor Ground Room Computer Lab	1.2
3201996	3926109	12/03/2018	4:03 pm - 12/06/2018 1:58 pm	Floor Ground Room Media Center	1.3
3201997	3926110	12/03/2018	4:04 pm - 12/06/2018 2:00 pm	Floor Ground Workroom	1.2
3201998	3926123	12/03/2018	4:07 pm - 12/06/2018 2:05 pm	Floor Ground Room 16	0.4
3201999	3926124	12/03/2018	4:08 pm - 12/06/2018 2:06 pm	Floor Ground Room 17	0.7
3202000	3926125	12/03/2018	4:10 pm - 12/06/2018 2:07 pm	Floor Ground Room PE Office	1.5
3202001	3926126	12/03/2018	4:11 pm - 12/06/2018 2:09 pm	Floor Ground Room 18	0.5
3202002	3926127	12/03/2018	4:12 pm - 12/06/2018 2:10 pm	Floor Ground Room 19	0.6

Comment: AMENDED REPORT on 2-5-19 to add several devices listed incorrectly from original datasheet.

Test Performed By: Lian Zadeng

Distributed by: Intertek-PSI (VA)

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

Report Reviewed By: 

Report Approved By: 

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey
24200 Woodfield Rd
Gaithersburg MD 20882 USA


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2405025	3917352	12/03/2018 6:00 am 12/06/2018 4:45 pm	Floor NA Room Blank	< 0.4

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

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: Date Analyzed: 12/10/2018 Date Reported: 01/02/2019

Report Reviewed By: 

Report Approved By: 

Disclaimer:

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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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:

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


MCPS Radon Survey
24200 Woodfield Rd
Gaithersburg MD 20882


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2391564	3888348	12/03/2018 4:16 pm - 12/06/2018 2:15 pm	Floor First Room APR	1.6
2391569	3888407	12/03/2018 4:15 pm - 12/06/2018 2:14 pm	Ground Floor Room GYM	1.6
2403700	3888327	12/03/2018 4:29 pm - 12/06/2018 2:27 pm	Ground Floor Room Stage	1.0

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

Distributed by: Intertek-PSI (VA)

Date Received: 12/12/2018 Date Logged: 12/12/2018 Date Analyzed: 12/08/2018 Date Reported: 01/02/2019

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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.

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT Intertek - PSI

Job Number 187732

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

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

Time Start: 0947 Time Stop: 0947 Time Start: _____ Time Stop: _____

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

3926831 thru 3926840 _____

G2 left

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

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

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

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

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

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

Note: All times are in 24-hour (military) notation, Eastern Standard Time (EST)
Background = 7 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: Woodfield Elementary School

Date of Test Report:	4/11/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	2
# Rooms \geq 4.0 pCi/L:	0
Low Value:	1.0
High Value:	1.5

Project Status:

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



April 11, 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 # 12146341.32

Location: Woodfield Elementary School
24200 Woodfield Road
Gaithersburg, MD 20882

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 Woodfield Elementary School, located at 24200 Woodfield Road in Gaithersburg, Maryland 20882 (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 March 14, 2016 and deployed three (3) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

KCI returned to the site on March 17, 2016 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to AccuStar Labs for analysis by gamma-ray spectroscopy. Accustar Labs is a NRSB certified analytical laboratory for radon analysis (certification # ARL0007) located at 929 Mount

Zion Road, Lebanon, Pennsylvania.

Evaluation of Testing Conditions:

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:
D- Duplicate sample

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

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

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

Sincerely,



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

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank*

PM- Project Manager

QC- Quality Control

*Office blanks were submitted at a rate of 1% for all samples deployed in Phase 12 testing. Office blanks were not submitted under each school individually.

Radon Testing Results		
Woodfield ES		
Test Period: 03/14/16-03/17/16		
Kit Number	Room / Area	Result
3028740	12	1.0
3028910	13	1.5

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Woodfield ES		
Test Period: 03/14/16-03/17/16		
Kit Number	QC Type	Result
3028901	D (12)	1.2

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

NRPP 10511AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 12146341

KCI Technologies
936 Ridgebrook Rd
Sparks MD 21152

Woodfield ES
27200 Woodfield Rd
Gaithersburg MD 20882

Log Number	Device Number	Test Exposure Duration:			Area Tested	Result (pCi/L)
3017560	3028901	03/14/2016 5:13 pm	03/17/2016 12:42 pm	Room 12	1.2	
3017561	3028740	03/14/2016 5:13 pm	03/17/2016 12:43 pm	Room 12	1.0	
3017562	3028910	03/14/2016 5:16 pm	03/17/2016 12:43 pm	Room 13	1.5	

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

Distributed by: KCI Technologies, Inc.

Date Received: 03/21/2016 Date Logged: 03/21/2016 Date Analyzed: 03/21/2016 Date Reported: 03/22/2016

Report Reviewed By: Grace Heubling

Report Approved By: Carolyn D. Koke

Carolyn D. Koke, President, AccuStar Labs

Disclaimer:

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

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Send Written Report To:

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

Site Tested:

Site Name: Woodfield ES
Address: 21200 Woodfield Rd
Address:
City / Town: Bethesda, MD
State/Province Postal Code: MD 20882
Test Country: Montgomery County
Project Number: 12146341

Contact Information:

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

Lab Use Only	Device Number	Building Number	Unit Number	Floor	Name of Room	Temp	Start Date mm/dd/yyyy	Start Time hh:mm am / pm	Stop Date mm/dd/yyyy	Stop Time hh:mm am / pm	Lab Use Only
	3028901		Room 12		12	72	3/14	5:13 PM	3/17	12:42 pm	
	3028740		Room 12		12			5:13 PM		12:43	
	3028910		Room 13		13			5:16 PM		12:43	

NRPP 10511AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 12146341

KCI Technologies
936 Ridgebrook Rd
Sparks MD 21152

MCPS Radon Phase 12 Office Blank

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3017546	3029151	03/14/2016 9:30 am 03/17/2016 9:30 am	Unit # 0 Office First Floor	<0.4

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

Distributed by: KCI Technologies, Inc.

Date Received: 03/21/2016 Date Logged: 03/21/2016 Date Analyzed: 03/21/2016 Date Reported: 03/22/2016

Report Reviewed By: Grace Heubling

Report Approved By: Carolyn D. Koke

Carolyn D. Koke, President, AccuStar Labs

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NRPP 10511AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 12146341

KCI Technologies
936 Ridgebrook Rd
Sparks MD 21152

MCPS Radon Phase 12 Office Blank

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3017545	3029152	03/15/2016 9:30 am 03/18/2016 9:30 am	Unit # 0 Office First Floor	<0.4

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

Distributed by: KCI Technologies, Inc.

Date Received: 03/21/2016 Date Logged: 03/21/2016 Date Analyzed: 03/21/2016 Date Reported: 03/22/2016

Report Reviewed By: Grace Heubling

Report Approved By: Carolyn D. Koke

Carolyn D. Koke, President, AccuStar Labs

Disclaimer:

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NRPP 10511AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested:

KCI Technologies
936 Ridgebrook Rd
Sparks MD 21152

MCPS
Transit Blanks

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

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

Distributed by: KCI Technologies, Inc.

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

Report Reviewed By: Christie Bates

Report Approved By: Carolyn D. Koke

Carolyn D. Koke, President, AccuStar Labs

Disclaimer:

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

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

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

Test Site Info

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

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

Multi-Page Report Y-N

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

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

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

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

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

Send Results To: _____
 Company Name: KCI Tech
 Address: 936 Ridgebrook
 City: Sparks State: MD Zip: 21152
 Phone: 410-599-3826
 EMAIL Results to: James.Mouldale@kci.com

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

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

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

TCS INDUSTRIES, INC.

(717) 657-7032

RADON GAS DETECTION

www.radondetek.com

4326 Crestview Road, Harrisburg, PA 17112

James Mouldale
KCI
936 Ridgebrook Rd.
Sparks, MD 21152

April 04, 2016

Dear Mr. Mouldale:

The spike exposure data were:

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

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

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

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

Sincerely,



Carl H. Distenfeld, CHP

TCS Radon Chamber NRSB CHM 0002

NRPP 10511AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested:

KCI Technologies
936 Ridgebrook Rd
Sparks MD 21152

MCPS
Radon Spike Sample Laboratory Results


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

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

Distributed by: KCI Technologies, Inc.

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

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

Report Reviewed By: 

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

Disclaimer:

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

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Radon Device Type Open Face Canister

Send Written Report To:

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

Site Tested:

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

Contact Information:

Contact: Tehsin Aurangabadwala
 Telephone: 410-891-1726
 Technician: [Blank]
 Cert. Number: [Blank]
 Signature: [Handwritten Signature]

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



MCPS RADON TESTING

Executive Summary: Woodfield Elementary School

Date of Test Report:	4/13/2016 (Rev 1)
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	44
# Rooms \geq 4.0 pCi/L:	1
Low Value:	< 0.3
High Value:	4.0

Rooms with results \geq 4.0 pCi/L:
Room 12 (4.0 pCi/L)

Project Status:
Initial testing completed; re-test needed for results \geq 4.0 pCi/L.



April 13, 2016 (Rev 1)

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

Re: **Radon Testing Services**
KCI Job # 12146341.26

Location: Woodfield Elementary School
24200 Woodfield Road
Gaithersburg, MD 20882

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 Woodfield Elementary School, located at 24200 Woodfield Road in Gaithersburg, Maryland 20882 (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 1, 2016 and deployed fifty-seven (57) 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 4, 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	12	4.0
< 4.0 pCi/L	See Attachment B	

Notes:
D- Duplicate sample

The 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		
Woodfield Elementary School		
Test Period: 02/01/16-02/04/16		
Kit Number	Room / Area	Result
7730805	5	0.7
7730806	6	1.4
7730807	7	1.2
7730808	8	3.1
7730809	9	0.9
7730810	10	2.1
7730812	11	1.4
7730816	12	4.0
7730817	13	3.9
7730818	14	1.6
7730819	14	1.6
7730820	15	1.8
7730827	16	1.6
7730833	17	1.4
7730831	18	1.5
7730835	19	1.5
7730836	20	0.9
7730837	21	1.0
7730838	22	1.0
7730839	23	1.0
7730842	APR	2.0
7730843	APR	1.6
7730844	APR STAGE	1.8
7730840	BLDG SVC	0.9
7730825	COMPUTER LAB	2.4
7730850	CON RM	0.9
7730846	COPY RM	1.9
7730811	ESOL	2.1
7730828	GYM	1.7
7730829	GYM	1.8
7730854	HEALTH RM	1.0
7730855	HEALTH RM 2	0.8
7730826	IDA	2.1
7730821	IMC	2.3
7730822	IMC	3.2
7730815	ITINERANT SERVICE	2.6
7730802	K 2	< 0.3
7730803	K 3	0.8
7730804	K 4	< 0.3
7730801	K1	1.2
7730848	MAIN OFFICE	0.9
7730856	MAIN OFFICE	0.7
7730824	MEDIA OFFICE	2.0
7730823	MEDIA WORK RM	2.7
7730830	PE OFFICE	1.8
7730852	PRM	< 0.3

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Woodfield Elementary School		
Test Period: 02/01/16-02/04/16		
Kit Number	Room / Area	Result
7730814	RDG SPECIALIST	1.6
7730847	SPEECH	1.4
7730845	STAFF LOUNGE	0.6

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Woodfield Elementary School		
Test Period: 02/01/16-02/04/16		
Kit Number	QC Type	Result
7730813	D (11)	0.9
7730832	D (18)	1.6
7730841	D (BLDG SVC)	0.9
7730851	D (CON RM)	0.8
7730849	D (MAIN OFFICE)	0.9
7730834	FB (17)	< 0.3
7730853	FB (PRM)	< 0.3
7730697	OB (0)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

February 23, 2016
LABORATORY ANALYSIS REPORT **

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7730697	0	2016-02-01 @ 3:00 pm	2016-02-04 @ 10:00 am	< 0.3	2016-02-09
7730810	10	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	2.1 ± 0.4	2016-02-09
7730812	11	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	1.4 ± 0.4	2016-02-09
7730813	11	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	0.9 ± 0.4	2016-02-09
7730816	12	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	4.0 ± 0.6	2016-02-09
7730817	13	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	3.9 ± 0.6	2016-02-09
7730818	14	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	1.6 ± 0.4	2016-02-09
7730819	14	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	1.6 ± 0.4	2016-02-09
7730820	15	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	1.8 ± 0.5	2016-02-09
7730827	16	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	1.6 ± 0.4	2016-02-09
7730833	17	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	1.4 ± 0.4	2016-02-09
7730834	17	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	< 0.3	2016-02-09
7730831	18	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	1.5 ± 0.4	2016-02-09
7730832	18	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	1.6 ± 0.4	2016-02-09
7730835	19	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	1.5 ± 0.4	2016-02-09
7730836	20	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	0.9 ± 0.4	2016-02-09
7730837	21	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	1.0 ± 0.4	2016-02-09
7730838	22	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	1.0 ± 0.4	2016-02-09
7730839	23	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	1.0 ± 0.4	2016-02-09
7730805	5	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	0.7 ± 0.4	2016-02-09
7730806	6	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	1.4 ± 0.4	2016-02-09
7730807	7	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	1.2 ± 0.4	2016-02-09
7730808	8	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	3.1 ± 0.5	2016-02-09
7730809	9	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	0.9 ± 0.4	2016-02-09
7730842	APR	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	2.0 ± 0.5	2016-02-09
7730843	APR	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	1.6 ± 0.4	2016-02-09
7730844	APR STAGE	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	1.8 ± 0.4	2016-02-09
7730840	BLDG SVC	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	0.9 ± 0.4	2016-02-09
7730841	BLDG SVC	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	0.9 ± 0.4	2016-02-09
7730825	COMPUTER LAB	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	2.4 ± 0.5	2016-02-09
7730850	CON RM	2016-02-01 @ 2:00 pm	2016-02-04 @ 9:00 am	0.9 ± 0.4	2016-02-09
7730851	CON RM	2016-02-01 @ 2:00 pm	2016-02-04 @ 9:00 am	0.8 ± 0.4	2016-02-09
7730846	COPY RM	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	1.9 ± 0.4	2016-02-09
7730828	GYM	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	1.7 ± 0.4	2016-02-09
7730829	GYM	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	1.8 ± 0.5	2016-02-09
7730854	HEALTH RM	2016-02-01 @ 2:00 pm	2016-02-04 @ 9:00 am	1.0 ± 0.4	2016-02-09
7730855	HEALTH RM 2	2016-02-01 @ 2:00 pm	2016-02-04 @ 9:00 am	0.8 ± 0.4	2016-02-09

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LABORATORY ANALYSIS REPORT **

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7730826	IDA	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	2.1 ± 0.4	2016-02-09
7730821	IMC	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	2.3 ± 0.5	2016-02-09
7730822	IMC	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	3.2 ± 0.5	2016-02-09
7730815	ITINERANT SERVIC	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	2.6 ± 0.5	2016-02-09
7730802	K 2	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	< 0.3	2016-02-09
7730803	K 3	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	0.8 ± 0.4	2016-02-09
7730804	K 4	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	< 0.3	2016-02-09
7730801	K1	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	1.2 ± 0.4	2016-02-09
7730811	ESOL	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	2.1 ± 0.5	2016-02-09
7730856	MAIN OFFICE	2016-02-01 @ 2:00 pm	2016-02-04 @ 9:00 am	0.7 ± 0.4	2016-02-09
7730848	MAIN OFFICE	2016-02-01 @ 2:00 pm	2016-02-04 @ 9:00 am	0.9 ± 0.4	2016-02-09
7730849	MAIN OFICE	2016-02-01 @ 2:00 pm	2016-02-04 @ 9:00 am	0.9 ± 0.4	2016-02-09
7730824	MEDIA OFFICE	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	2.0 ± 0.5	2016-02-09
7730823	MEDIA WORK RM	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	2.7 ± 0.5	2016-02-09
7730830	PE OFFICE	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	1.8 ± 0.4	2016-02-09
7730852	PRM	2016-02-01 @ 2:00 pm	2016-02-04 @ 9:00 am	< 0.3	2016-02-09
7730853	PRM	2016-02-01 @ 2:00 pm	2016-02-04 @ 9:00 am	< 0.3	2016-02-09
7730814	RDG SPECIALIST	2016-02-01 @ 12:00 pm	2016-02-04 @ 9:00 am	1.6 ± 0.4	2016-02-08
7730847	SPEECH	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	1.4 ± 0.4	2016-02-09
7730845	STAFF LOUNGE	2016-02-01 @ 1:00 pm	2016-02-04 @ 9:00 am	0.6 ± 0.3	2016-02-09

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**LABORATORY ANALYSIS
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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

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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 7 (2-1-2016)

Name of School/Facility:

- 1. Wyngate E.S.
- 2. Seven Locks E.S.
- 3. Takoma Park M.S.
- 4. Somerset E.S.
- 5. Silver Spring Int. M.S.
- 6. Sligo Creek E.S.
- 7. Tilden M.S.
- 8. Tilden Center
- 9. Bethesda Annex
- 10. Bethesda Depot
- 11. Bethesda Trans Depot
- 12. Sligo M.S.
- 13. Stonegate E.S.
- 14. Randolph Transportation
- 15. Earl B. Wood M.S.
- 16. Sargent Shriver E.S.
- 17. Thomas Wooten H.S.
- 18. Stone Mill E.S.
- 19. Strawberry Knoll E.S.
- 20. Shady Grove M.S.
- 21. Washington Grove E.S.
- 22. Sherwood E.S.
- 23. Woodfield E.S.
- 24. Taylor Learning Center
- 25. Kingsley Wilderness

	Date	Initials
Radon Test Kits Deployed	2/1/16	JM
Radon Test Kits Collected	2/4/16	JM
Radon Test Kits Shipped to Lab*	2/4/16	JM
Radon Test Kits Received by Lab*	2/8/16	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 7 (2-2-2016)

Name of School/Facility:

- | | |
|--------------------------------|--------------------------------|
| 1. Concord Center | 8. Food & Nutritional Services |
| 2. Lynnbrook Center | 9. Fairland Center |
| 3. Carver (CESC) | 10. Redland M.S. (retest) |
| 4. Spring Mill (area 1 Office) | 11. Clarksburg Trans Depot |
| 5. Wheaton H.S | 12. Clarksburg Main Depot |
| 6. Montrose Center | 13. Clarksburg E.S. |
| 7. West Farm Trans Depot | |

	Date	Initials
Radon Test Kits Deployed	2/2/16	JM
Radon Test Kits Collected	2/5/16	JM
Radon Test Kits Shipped to Lab*	2/5/16	JM
Radon Test Kits Received by Lab*	2/9/16	JM

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