



MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	Forest Knolls Elementary School
Date of Test Report	3/2/2023
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	73
# Rooms Re-tested	2
# Rooms \geq 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	2.2 pCi/L

Project Status:

1. Initial testing completed;
2. Missing or compromised samples need re-test.
3. Retesting Completed 2/14/23 – 2/17/23.
4. 5-Year Testing Completed.



March 2, 2023

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

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

Location: Forest Knolls Elementary School
10830 Eastwood Avenue
Silver Spring, MD 20895

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 Forest Knolls Elementary School, located at 10830 Eastwood Ave. Silver Spring, MD 20895 (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 initially on January 23, 2023 and deployed eighty-five (85) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

KCI re-visited the site on February 14, 2023 to deploy four (4) activated charcoal (AC) radon test kits for testing of missed rooms or compromised test kits during initial testing.

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

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

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

Evaluation of Testing Conditions:

These tests represent:

- Follow up to initial testing.

These tests were conducted to:

- Evaluate radon concentration levels at the facility.

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

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

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

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

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

Results:

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

The results of the radon test analysis indicated the following:

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

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

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

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

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

Sincerely,



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

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Check, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

OC- Quality Control

Table 1- Radon Testing Results		
Forest Knolls ES		
Test Period: 01/09/2023 - 01/12/2023		
Kit Number	Room / Area	Result
11288628	4	1.1
11288621	5	0.6
11288602	6	0.6
11288607	8	< 0.3
11288608	9	0.9
11288643	10	0.6
11288644	12	< 0.3
11288622	13	0.5
11288629	13	< 0.3
11288615	14	1.1
11288635	15	0.7
11288636	15	0.9
11288638	16	0.8
11288637	17	< 0.3
11288645	18	0.6
11288651	18	0.9
11288630	19	< 0.3
11288661	20	1.0
11288653	22	0.9
11288660	23	0.9
11288652	24	1.4
11288659	25	1.2
11288658	26	0.6
11288654	27	0.8
11288625	28	0.7
11288642	29	0.5
11288649	29	< 0.3
11288694	30	0.8
11288633	31	1.2
11288641	31	0.8
11288646	32	0.6
11288626	33	< 0.3
11288631	34	1.2
11288609	35	1.2
11288624	36	0.7
11288657	36	< 0.3
11288663	37	0.9
11288617	38	< 0.3
11288623	38	0.7
11288655	39	< 0.3
11288656	39	0.8
11288670	40	1.7

Table 1- Radon Testing Results		
Forest Knolls ES		
Test Period: 01/09/2023 - 01/12/2023		
Kit Number	Room / Area	Result
11288662	41	< 0.3
11288673	42	1.9
11288639	43	1.4
11288666	44	2.2
11288632	45	1.0
11288691	46	0.6
11288640	47	0.8
11288665	48	0.9
11288647	49	0.6
11288669	50	1.2
11288648	51	0.8
11288684	52	0.9
11288693	54	1.4
11288700	54	1.3
11288675	55	1.5
11288686	56	0.5
11288674	57	1.2
11288681	60	< 0.3
11288692	60	< 0.3
11288677	64	1.1
11288667	66	1.0
11288650	24A	1.4
11288634	24B	1.7
11288627	7A	< 0.3
11288601	7C	0.6
11288616	APR	1.1
11288668	APR	0.8
11288676	APR	< 0.3
11288613	ASSISTANT PRICIPAL	1.4
11288611	CONFERENCE	0.9
11288678	GYM	1.1
11288685	GYM	1.4
11288683	GYM OFFICE	1.3
11288603	HEALTH	< 0.3
11288605	HEALTH OFFICE	0.9
11288604	MAIN OFFICE	0.9
11288614	MEDIA	0.8
11288619	MEDIA	0.8
11288620	MEDIA OFFICE	0.6
11288612	PRINCIPAL	1.1
11288606	STAFF WORKROOM	0.6
11288610	TV STUDIO	1.2

Table 1- Radon Testing Results		
Forest Knolls ES		
Test Period: 01/09/2023 - 01/12/2023		
Kit Number	Room / Area	Result
11288618	TV STUDIO	0.6

Table 2- Radon Testing Results			
Forest Knolls ES			
Test Period: 01/09/23 - 01/12/23			
Kit Number	QC Type	Room / Area	Result
11288629	FB	13	< 0.3
11288635	D	15	0.7
11288651	D	18	0.9
11288649	FB	29	< 0.3
11288633	D	31	1.2
11288657	FB	36	< 0.3
11288617	D	38	< 0.3
11288655	D	39	< 0.3
11288693	FB	54	1.4
11288692	FB	60	< 0.3
11288676	D	Apr	< 0.3
11288618	D	Tv studio	0.6
11285160	OB	OFFICE BLANK	< 0.3
11285167	TB	TRAVEL BLANK	< 0.3

Table 1- Radon Testing Results		
Forest Knolls ES RT		
Test Period: 02/14/2023 - 02/17/2023		
Kit Number	Room / Area	Result
11634045	53	< 0.3
11634055	53	< 0.3
11634973	53	< 0.3
11634054	KITCHEN OFFICE	< 0.3

Table 2- Radon Testing Results			
Forest Knolls ES RT			
Test Period: 02/14/23 - 02/17/23			
Kit Number	QC Type	Room / Area	Result
11634973	D	53	< 0.3
11634055	FB	53	< 0.3
11634060	OB	OFFICE BLANK	< 0.3
11634067	TB	TRAVEL BALNK	< 0.3

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:
FOREST KNOLLS ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11288643	10	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.6 ± 0.4	2023-01-16
11288644	12	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	< 0.3	2023-01-16
11288629	13	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	< 0.3	2023-01-16
11288622	13	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.5 ± 0.3	2023-01-16
11288615	14	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	1.1 ± 0.4	2023-01-16
11288636	15	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.9 ± 0.4	2023-01-16
11288635	15	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.7 ± 0.4	2023-01-16
11288638	16	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.8 ± 0.4	2023-01-16
11288637	17	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	< 0.3	2023-01-16
11288651	18	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.9 ± 0.4	2023-01-16
11288645	18	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.6 ± 0.4	2023-01-16
11288630	19	2023-01-09 @ 10:00 am	2023-01-12 @ 1:00 pm	< 0.3	2023-01-16
11288661	20	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	1.0 ± 0.4	2023-01-16
11288653	22	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.9 ± 0.4	2023-01-16
11288660	23	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.9 ± 0.4	2023-01-16
11288652	24	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	1.4 ± 0.4	2023-01-16
11288650	24A	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	1.4 ± 0.4	2023-01-16
11288634	24B	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	1.7 ± 0.4	2023-01-16
11288659	25	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	1.2 ± 0.3	2023-01-16
11288658	26	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.6 ± 0.3	2023-01-16
11288654	27	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.8 ± 0.4	2023-01-16
11288625	28	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.7 ± 0.4	2023-01-16
11288642	29	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.5 ± 0.4	2023-01-16
11288649	29	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	< 0.3	2023-01-16
11288694	30	2023-01-09 @ 11:00 am	2023-01-12 @ 12:00 pm	0.8 ± 0.4	2023-01-16
11288641	31	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.8 ± 0.4	2023-01-16
11288633	31	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	1.2 ± 0.4	2023-01-16
11288646	32	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.6 ± 0.4	2023-01-16
11288626	33	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	< 0.3	2023-01-16
11288631	34	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	1.2 ± 0.4	2023-01-16
11288609	35	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	1.2 ± 0.4	2023-01-16
11288657	36	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	< 0.3	2023-01-16
11288624	36	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.7 ± 0.4	2023-01-16
11288663	37	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.9 ± 0.4	2023-01-16
11288617	38	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	< 0.3	2023-01-16
11288623	38	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.7 ± 0.4	2023-01-16
11288656	39	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.8 ± 0.4	2023-01-16

Radon test result report for:
FOREST KNOLLS ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11288655	39	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	< 0.3	2023-01-16
11288628	4	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	1.1 ± 0.4	2023-01-16
11288670	40	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	1.7 ± 0.4	2023-01-16
11288662	41	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	< 0.3	2023-01-16
11288673	42	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	1.9 ± 0.4	2023-01-16
11288639	43	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	1.4 ± 0.4	2023-01-16
11288666	44	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	2.2 ± 0.4	2023-01-16
11288632	45	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	1.0 ± 0.4	2023-01-16
11288691	46	2023-01-09 @ 11:00 am	2023-01-12 @ 12:00 pm	0.6 ± 0.4	2023-01-16
11288640	47	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.8 ± 0.4	2023-01-16
11288665	48	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.9 ± 0.4	2023-01-16
11288647	49	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.6 ± 0.4	2023-01-16
11288621	5	2023-01-09 @ 9:00 am	2023-01-12 @ 12:00 pm	0.6 ± 0.4	2023-01-16
11288669	50	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	1.2 ± 0.4	2023-01-16
11288648	51	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.8 ± 0.4	2023-01-16
11288684	52	2023-01-09 @ 11:00 am	2023-01-12 @ 1:00 pm	0.9 ± 0.4	2023-01-16
11288700	54	2023-01-09 @ 11:00 am	2023-01-12 @ 1:00 pm	1.3 ± 0.4	2023-01-16
11288693	54	2023-01-09 @ 11:00 am	2023-01-12 @ 1:00 pm	1.4 ± 0.4	2023-01-16
11288675	55	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	1.5 ± 0.4	2023-01-16
11288686	56	2023-01-09 @ 11:00 am	2023-01-12 @ 1:00 pm	0.5 ± 0.3	2023-01-16
11288674	57	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	1.2 ± 0.4	2023-01-16
11288602	6	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.6 ± 0.4	2023-01-16
11288692	60	2023-01-09 @ 11:00 am	2023-01-12 @ 1:00 pm	< 0.3	2023-01-16
11288681	60	2023-01-09 @ 11:00 am	2023-01-12 @ 1:00 pm	< 0.3	2023-01-16
11288677	64	2023-01-09 @ 11:00 am	2023-01-12 @ 1:00 pm	1.1 ± 0.4	2023-01-16
11288667	66	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	1.0 ± 0.4	2023-01-16
11288627	7A	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	< 0.3	2023-01-16
11288601	7C	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	0.6 ± 0.4	2023-01-16
11288607	8	2023-01-09 @ 10:00 am	2023-01-12 @ 12:00 pm	< 0.3	2023-01-16
11288608	9	2023-01-09 @ 10:00 am	2023-01-12 @ 1:00 pm	0.9 ± 0.4	2023-01-16
11288676	APR	2023-01-09 @ 11:00 am	2023-01-12 @ 1:00 pm	< 0.3	2023-01-16
11288616	APR	2023-01-09 @ 11:00 am	2023-01-12 @ 1:00 pm	1.1 ± 0.4	2023-01-16
11288668	APR	2023-01-09 @ 11:00 am	2023-01-12 @ 1:00 pm	0.8 ± 0.4	2023-01-16
11288613	ASSISTANT PRICIPAL	2023-01-09 @ 9:00 am	2023-01-12 @ 12:00 pm	1.4 ± 0.4	2023-01-16
11288611	CONFERENCE	2023-01-09 @ 9:00 am	2023-01-12 @ 12:00 pm	0.9 ± 0.4	2023-01-16
11288678	GYM	2023-01-09 @ 11:00 am	2023-01-12 @ 1:00 pm	1.1 ± 0.4	2023-01-16
11288685	GYM	2023-01-09 @ 11:00 am	2023-01-12 @ 1:00 pm	1.4 ± 0.4	2023-01-16

Radon test result report for:
**FOREST KNOLLS ES
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11288683	GYM OFFICE	2023-01-09 @ 11:00 am	2023-01-12 @ 1:00 pm	1.3 ± 0.4	2023-01-16
11288603	HEALTH	2023-01-09 @ 9:00 am	2023-01-12 @ 12:00 pm	< 0.3	2023-01-16
11288605	HEALTH OFFICE	2023-01-09 @ 9:00 am	2023-01-12 @ 12:00 pm	0.9 ± 0.4	2023-01-16
11288604	MAIN OFFICE	2023-01-09 @ 9:00 am	2023-01-12 @ 12:00 pm	0.9 ± 0.4	2023-01-16
11288619	MEDIA	2023-01-09 @ 9:00 am	2023-01-12 @ 1:00 pm	0.8 ± 0.4	2023-01-16
11288614	MEDIA	2023-01-09 @ 9:00 am	2023-01-12 @ 1:00 pm	0.8 ± 0.4	2023-01-16
11288620	MEDIA OFFICE	2023-01-09 @ 9:00 am	2023-01-12 @ 1:00 pm	0.6 ± 0.4	2023-01-16
11288612	PRINCIPAL	2023-01-09 @ 9:00 am	2023-01-12 @ 12:00 pm	1.1 ± 0.4	2023-01-16
11288606	STAFF WORKROOM	2023-01-09 @ 9:00 am	2023-01-12 @ 12:00 pm	0.6 ± 0.4	2023-01-16
11288618	TV STUDIO	2023-01-09 @ 9:00 am	2023-01-12 @ 12:00 pm	0.6 ± 0.4	2023-01-16
11288610	TV STUDIO	2023-01-09 @ 9:00 am	2023-01-12 @ 12:00 pm	1.2 ± 0.4	2023-01-16

February 20, 2023

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
FOREST KNOLLS ES
1

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11634045	53	2023-02-14 @ 10:00 am	2023-02-17 @ 11:00 am	< 0.3	2023-02-20
11634055	53	2023-02-14 @ 10:00 am	2023-02-17 @ 11:00 am	< 0.3	2023-02-20
11634973	53	2023-02-14 @ 10:00 am	2023-02-17 @ 11:00 am	< 0.3	2023-02-20
11634054	KITCHEN OFFICE	2023-02-14 @ 10:00 am	2023-02-17 @ 11:00 am	< 0.3	2023-02-20

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI TECHNOLOGIES, INC Job Number 208802

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

Date Start: 1/27/23 Date Stop: 1/30/23 Date Start: _____ Date Stop: _____

Time Start: 0816 Time Stop: 0816 Time Start: _____ Time Stop: _____

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

11633682, 11633687, 11633688 _____

11633695, 11633696 _____

P3 left

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

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

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

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

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

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

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

February 3, 2023

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

OFFICE

MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11633696	SK10	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	24.2 ± 1.9	2023-02-03
11633682	SK6	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	26.9 ± 2.1	2023-02-03
11633687	SK7	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	23.8 ± 1.9	2023-02-03
11633688	SK8	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	25.9 ± 2.1	2023-02-03
11633695	SK9	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	27.0 ± 2.2	2023-02-03

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Week 2 Retesting January Schools

Name of Schools:

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

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

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

RADON SCREENING SURVEY – FOLLOW-UP FOREST KNOLLS ELEMENTARY SCHOOL

10830 Eastwood Avenue,

Silver Spring, Maryland 20901

EXECUTIVE SUMMARY

Date of Test Report:	3/15/19
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	2
# Rooms \geq 4.0 pCi/L:	0
Low Value:	0.7
High Value:	2.0
Confirmed Rooms \geq 4.0 pCi/L US EPA Action Level	0

Summary of Sampling Events \geq 4.0 pCi/L

Room	Result (pCi/L) 2/13/19	Result (pCi/L) 3/15/19	Average Result (pCi/L)
7A	4.2	2.0	3.1
35	missing	0.7	0.7



**MONTGOMERY COUNTY PUBLIC SCHOOLS
RADON TESTING**

**Executive Summary:
Forest Knolls Elementary School**

10830 Eastwood Avenue,
Silver Spring, MD 20901

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:	2
# of Rooms \geq 4.0 pCi/L:	0
Low Value:	0.7
High Value:	2.0

Project Status

Retesting completed: No further action at this time.



March 15, 2019

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

Re: Radon Testing Services

Location: Forest Knolls Elementary School
10830 Eastwood 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 Forest Knolls Elementary School, located at 10830 Eastwood 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 February 26, 2019 and deployed two (2) activated charcoal (AC) radon test kit. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on March 01, 2019 to retrieve the radon sampling test kit. A floor plan map of the building with the test location is included as Attachment A of this report.

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

Evaluation of Testing Conditions:

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

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



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

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:

D -Duplicate Sample

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

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

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

ATTACHMENT B

Radon Test Summary Spreadsheet

Radon Testing Results		
Forest Knolls Elementary School		
Testing period: 2/26/19 - 3/01/19		
Kit Number	Room / Area	Result (pCi/L)
3923477	7A	2.0
3923479	35	0.7

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 Forest Knolls ES
10830 Eastwood Ave
Silver Spring MD 20901

Log Number	Device Number	Test Exposure Duration:			Area Tested	Result pCi/L
3220616	3923477	02/26/2019	6:37 am	03/01/2019 7:16 am	Floor 1 Room 7A	2.0
3220617	3923479	02/26/2019	6:40 am	03/01/2019 7:14 am	Floor 1 Room 35	0.7

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

Distributed by: Intertek-PSI (VA)

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

Report Reviewed By: 

Report Approved By: 

Disclaimer:

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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

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



MONTGOMERY COUNTY PUBLIC SCHOOLS RADON TESTING

Executive Summary: Forest Knolls Elementary School

10830 Eastwood Avenue,
Silver Spring, MD 20901

Date of Test Report:	2/13/2019
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:	81
# of Rooms ≥ 4.0 pCi/L:	1
Low Value:	< 0.4
High Value:	4.2
Rooms with Results ≥ 4.0 pCi/L:	7A

Project Status

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



February 13, 2019

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

Re: Radon Testing Services

Location: Forest Knolls Elementary School
10830 Eastwood 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 Forest Knolls Elementary School, located at 10830 Eastwood 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 eighty-nine (89) activated charcoal (AC) radon test kits. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on November 16, 2018 to retrieve the radon sampling test kits. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

PSI shipped all radon tests via overnight delivery to AccuStar Labs for analysis by gamma-ray spectroscopy. AccuStar Labs is a NRSB certified analytical laboratory for radon analysis located at 929 Mount Zion Road, Lebanon, Pennsylvania (certification # 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	7A	4.2
≤ 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 style with a large initial 'N'.

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		
Forest Knolls Elementary School		
Testing period: 11/13/18 - 11/16/18		
Kit Number	Room / Area	Result (pCi/L)
3915590	1	0.6
3915549	1	< 0.4
3915552	1A	1.1
3915593	2	0.8
3915592	2A	1.2
3915610	2B	1.0
3915591	2C	1.3
3915598	2E	0.5
3915600	2H	0.9
3915602	2I	1.4
3915548	3	< 0.4
3915595	4	0.4
3915596	4	< 0.4
3915603	5	< 0.4
3915597	5A	2.8
3915605	6	0.4
3915607	7A	4.2
3915601	7B	< 0.4
3915599	7C	< 0.4
3915604	8	< 0.4
3915609	9	1.6
3915606	10	< 0.4
3915564	12	< 0.4
3915608	13	< 0.4
3915565	14	0.4
3915566	15	< 0.4
3915563	16	< 0.4
3915505	17	0.9
3915562	18	< 0.4
3915560	19	< 0.4
3915616	20	< 0.4
3915614	22	1.4
3915617	23	0.9
3915613	24	1.9
3915611	24A	2.2
3915619	24B	2.4
3915615	25	0.8
3915568	26	0.5
3915569	27	1.3
3915621	28	< 0.4
3915570	29	0.5
3915545	30	< 0.4
3915618	31	1.0

Radon Testing Results		
Forest Knolls Elementary School		
Testing period: 11/13/18 - 11/16/18		
Kit Number	Room / Area	Result (pCi/L)
3915551	32	0.4
3915567	33	0.5
3915625	34	0.9
3915543	35 (MISSING)	--
3915622	36	0.4
3915501	37	< 0.4
3915588	38	< 0.4
3915627	39	< 0.4
3915506	40	< 0.4
3915582	41	0.4
3915557	42	1.1
3915581	43	0.6
3915556	44	0.6
3915503	45	0.4
3915558	46	0.4
3915589	47	< 0.4
3915559	48	0.4
3915544	49	< 0.4
3915550	50	1.5
3915510	51	< 0.4
3915628	52	< 0.4
3915626	53	< 0.4
3915585	54	0.5
3915587	55	0.7
3915504	56	< 0.4
3915502	57	< 0.4
3915584	58A	1.5
3915507	64	1.3
3915623	66	1.2
3915583	APR	0.4
3915508	APR	0.6
3915554	Gym	1.1
3915509	Gym	2.2
3915629	Kitchen	< 0.4
3915555	Kitchen Office	< 0.4

Radon Testing Results		
Forest Knolls Elementary School		
Testing period: 11/13/18 - 11/16/18		
Kit Number	QC Type	Result (pCi/L)
3915594	5A (D)	2.8
3915561	14 (D)	0.6
3915620	24B (D)	2.2
3915612	25 (D)	0.9
3915542	28 (D)	0.4
3915624	37 (D)	< 0.4
3915586	47 (D)	< 0.4
3917312	Field Blank	< 0.4
3917313	Field Blank	< 0.4
3917311	Office Blank	< 0.4
3917314	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 Forest Knolls Elementary Scho
10830 Eastwood Avenue
Silver Spring MD 20901

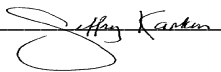
Log Number	Device Number	Test Exposure	Duration:	Area Tested	Result pCi/L
3197322	3915593	11/13/2018 6:24 pm	11/16/2018 1:35 pm	Flr First Rm 2	0.8
3197323	3915592	11/13/2018 6:24 pm	11/16/2018 1:36 pm	Flr First Rm 2A Duplicate	1.2
3197324	3915610	11/13/2018 6:25 pm	11/16/2018 1:36 pm	Flr First Rm 2B	1.0
3197325	3915591	11/13/2018 6:25 pm	11/16/2018 1:37 pm	Flr First Rm 2C	1.3
3197326	3915598	11/13/2018 6:26 pm	11/16/2018 1:39 pm	Flr First Rm 2E	0.5
3197327	3915600	11/13/2018 6:27 pm	11/16/2018 1:40 pm	Flr First Rm 2H	0.9
3197328	3915602	11/13/2018 6:28 pm	11/16/2018 1:41 pm	Flr First Rm 2I	1.4
3197329	3915603	11/13/2018 6:30 pm	11/16/2018 1:42 pm	Flr First Rm 5	< 0.4
3197330	3915597	11/13/2018 6:31 pm	11/16/2018 1:43 pm	Flr First Rm 5A	2.8
3197331	3915594	11/13/2018 6:31 pm	11/16/2018 1:43 pm	Flr First Rm 5A	2.8
3197332	3915607	11/13/2018 6:33 pm	11/16/2018 1:46 pm	Flr First Rm 7A	4.2


Comment: AMENDED REPORT for 3915543 on 1-7-19 to reflect that this device could not be retrieved.

Test Performed By: Not Indicated

Distributed by: Intertek-PSI (VA)

Date Received: 11/20/2018 Date Logged: 11/20/2018 Date Analyzed: 11/20/2018 Date Reported: 11/29/2018

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 Forest Knolls Elementary Scho
10830 Eastwood Avenue
Silver Spring MD 20901

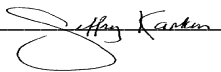
Log Number	Device Number	Test Exposure	Duration:	Area Tested	Result pCi/L
3197333	3915601	11/13/2018 6:34 pm	11/16/2018 1:47 pm	Flr First Rm 7B	< 0.4
3197334	3915599	11/13/2018 6:34 pm	11/16/2018 1:47 pm	Flr First Rm 7C	< 0.4
3197335	3915596	11/13/2018 6:36 pm	11/16/2018 1:48 pm	Flr First Rm 4	< 0.4
3197336	3915595	11/13/2018 6:36 pm	11/16/2018 1:48 pm	Flr First Rm 4	0.4
3197337	3915605	11/13/2018 6:37 pm	11/16/2018 1:48 pm	Flr First Rm 6	0.4
3197338	3915604	11/13/2018 6:37 pm	11/16/2018 1:49 pm	Flr First Rm 8	< 0.4
3197339	3915606	11/13/2018 6:38 pm	11/16/2018 1:49 pm	Flr First Rm 10	< 0.4
3197340	3915609	11/13/2018 6:39 pm	11/16/2018 1:50 pm	Flr First Rm 9	1.6
3197341	3915608	11/13/2018 6:41 pm	11/16/2018 1:51 pm	Flr First Rm 13	< 0.4
3197342	3915566	11/13/2018 6:42 pm	11/16/2018 1:51 pm	Flr First Rm 15	< 0.4
3197343	3915505	11/13/2018 6:42 pm	11/16/2018 1:52 pm	Flr First Rm 17	0.9

Comment: AMENDED REPORT for 3915543 on 1-7-19 to reflect that this device could not be retrieved.

Test Performed By: Not Indicated

Distributed by: Intertek-PSI (VA)

Date Received: 11/20/2018 Date Logged: 11/20/2018 Date Analyzed: 11/20/2018 Date Reported: 11/29/2018

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

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 Forest Knolls Elementary Scho
10830 Eastwood Avenue
Silver Spring MD 20901

Log Number	Device Number	Test Exposure	Duration:	Area Tested	Result pCi/L
3197344	3915564	11/13/2018 6:44 pm	11/16/2018 1:52 pm	Flr First Rm 12	< 0.4
3197345	3915560	11/13/2018 6:45 pm	11/16/2018 1:52 pm	Flr First Rm 19	< 0.4
3197346	3915565	11/13/2018 6:48 pm	11/16/2018 1:53 pm	Flr First Rm 14	0.4
3197347	3915563	11/13/2018 6:48 pm	11/16/2018 1:53 pm	Flr First Rm 16	< 0.4
3197348	3915562	11/13/2018 6:50 pm	11/16/2018 1:53 pm	Flr First Rm 18	< 0.4
3197349	3915561	11/13/2018 7:48 pm	11/16/2018 1:54 pm	Flr First Rm 14 Duplicate	0.6
3197350	3915616	11/13/2018 6:51 pm	11/16/2018 1:54 pm	Flr First Rm 20	< 0.4
3197351	3915617	11/13/2018 6:52 pm	11/16/2018 1:55 pm	Flr First Rm 23	0.9
3197352	3915615	11/13/2018 6:54 pm	11/16/2018 1:55 pm	Flr First Rm 25	0.8
3197353	3915612	11/13/2018 6:54 pm	11/16/2018 1:56 pm	Flr First Rm 25 Duplicate	0.9
3197354	3915569	11/13/2018 6:55 pm	11/16/2018 1:56 pm	Flr First Rm 27	1.3

Comment: AMENDED REPORT for 3915543 on 1-7-19 to reflect that this device could not be retrieved.

Test Performed By: Not Indicated

Distributed by: Intertek-PSI (VA)

Date Received: 11/20/2018 Date Logged: 11/20/2018 Date Analyzed: 11/20/2018 Date Reported: 11/29/2018

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 Forest Knolls Elementary Scho
10830 Eastwood Avenue
Silver Spring MD 20901

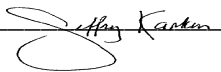
Log Number	Device Number	Test Exposure	Duration:	Area Tested	Result pCi/L
3197355	3915614	11/13/2018 6:56 pm	11/16/2018 1:56 pm	Flr First Rm 22	1.4
3197356	3915613	11/13/2018 6:58 pm	11/16/2018 1:57 pm	Flr First Rm 24	1.9
3197357	3915611	11/13/2018 6:59 pm	11/16/2018 1:57 pm	Flr First Rm 24A	2.2
3197358	3915619	11/13/2018 7:00 pm	11/16/2018 1:57 pm	Flr First Rm 24B	2.4
3197359	3915620	11/13/2018 7:00 pm	11/16/2018 1:58 pm	Flr First Rm 24B Duplicate	2.2
3197360	3915570	11/13/2018 7:02 pm	11/16/2018 1:58 pm	Flr First Rm 29	0.5
3197361	3915618	11/13/2018 7:02 pm	11/16/2018 2:00 pm	Flr First Rm 31	1.0
3197362	3915567	11/13/2018 7:03 pm	11/16/2018 2:01 pm	Flr First Rm 33	0.5
3197363	3915568	11/13/2018 7:06 pm	11/16/2018 2:02 pm	Flr First Rm 26	0.5
3197364	3915621	11/13/2018 7:07 pm	11/16/2018 2:03 pm	Flr First Rm 28	< 0.4
3197365	3915542	11/13/2018 7:07 pm	11/16/2018 2:04 pm	Flr First Rm 28 Duplicate	0.4

Comment: AMENDED REPORT for 3915543 on 1-7-19 to reflect that this device could not be retrieved.

Test Performed By: Not Indicated

Distributed by: Intertek-PSI (VA)

Date Received: 11/20/2018 Date Logged: 11/20/2018 Date Analyzed: 11/20/2018 Date Reported: 11/29/2018

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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

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NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Forest Knolls Elementary Scho
10830 Eastwood Avenue
Silver Spring MD 20901

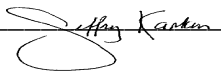
Log Number	Device Number	Test Exposure Duration:				Area Tested	Result pCi/L
3197366	3915545	11/13/2018	7:10 pm	11/16/2018	2:05 pm	Flr First Rm 30	< 0.4
3197367	3915551	11/13/2018	7:11 pm	11/16/2018	2:06 pm	Flr First Rm 32	0.4
3197368	3915625	11/13/2018	7:12 pm	11/16/2018	2:06 pm	Flr First Rm 34	0.9
3197369	3915622	11/13/2018	7:12 pm	11/16/2018	2:07 pm	Flr First Rm 36	0.4
3197370	3915501	11/13/2018	7:15 pm	11/16/2018	2:07 pm	Flr First Rm 37	< 0.4
3197371	3915624	11/13/2018	7:15 pm	11/16/2018	2:08 pm	Flr First Rm 37 Duplicate	< 0.4
3197372	3915510	11/13/2018	7:16 pm	11/16/2018	2:08 pm	Flr First Rm 51	< 0.4
3197373	3915627	11/13/2018	7:16 pm	11/16/2018	2:09 pm	Flr First Rm 39	< 0.4
3197374	3915582	11/13/2018	7:20 pm	11/16/2018	2:10 pm	Flr First Rm 41	0.4
3197375	3915544	11/13/2018	7:20 pm	11/16/2018	2:11 pm	Flr First Rm 49	< 0.4
3197376	3915581	11/13/2018	7:21 pm	11/16/2018	2:12 pm	Flr First Rm 43	0.6

Comment: AMENDED REPORT for 3915543 on 1-7-19 to reflect that this device could not be retrieved.

Test Performed By: Not Indicated

Distributed by: Intertek-PSI (VA)

Date Received: 11/20/2018 Date Logged: 11/20/2018 Date Analyzed: 11/20/2018 Date Reported: 11/29/2018

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Forest Knolls Elementary Scho
10830 Eastwood Avenue
Silver Spring MD 20901

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
3197377	3915589	11/13/2018 7:23 pm	11/16/2018 2:12 pm	Flr First Rm 47	< 0.4
3197378	3915586	11/13/2018 7:23 pm	11/16/2018 2:13 pm	Flr First Rm 47 Duplicate	< 0.4
3197379	3915503	11/13/2018 7:25 pm	11/16/2018 2:13 pm	Flr First Rm 45	0.4
3197380	3915626	11/13/2018 7:26 pm	11/16/2018 2:14 pm	Flr First Rm 53	< 0.4
3197381	3915587	11/13/2018 7:26 pm	11/16/2018 2:15 pm	Flr First Rm 55	0.7
3197382	3915588	11/13/2018 7:27 pm	11/16/2018 2:16 pm	Flr First Rm 38	< 0.4
3197383	3915502	11/13/2018 7:27 pm	11/16/2018 2:18 pm	Flr First Rm 57	< 0.4
3197384	3915506	11/13/2018 7:28 pm	11/16/2018 2:19 pm	Flr First Rm 40	< 0.4
3197385	3915557	11/13/2018 7:30 pm	11/16/2018 2:20 pm	Flr First Rm 42	1.1
3197386	3915556	11/13/2018 7:32 pm	11/16/2018 2:21 pm	Flr First Rm 44	0.6
3197387	3915558	11/13/2018 7:33 pm	11/16/2018 2:22 pm	Flr First Rm 46	0.4

Comment: AMENDED REPORT for 3915543 on 1-7-19 to reflect that this device could not be retrieved.

Test Performed By: Not Indicated

Distributed by: Intertek-PSI (VA)

Date Received: 11/20/2018 Date Logged: 11/20/2018 Date Analyzed: 11/20/2018 Date Reported: 11/29/2018

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 Forest Knolls Elementary Scho
10830 Eastwood Avenue
Silver Spring MD 20901

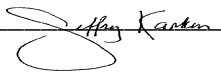
Log Number	Device Number	Test Exposure	Duration:	Area Tested	Result pCi/L
3197388	3915559	11/13/2018 7:34 pm	11/16/2018 2:23 pm	Flr First Rm 48	0.4
3197389	3915550	11/13/2018 7:37 pm	11/16/2018 2:23 pm	Flr First Rm 50	1.5
3197390	3915623	11/13/2018 7:38 pm	11/16/2018 2:24 pm	Flr First Rm 66	1.2
3197391	3915507	11/13/2018 7:39 pm	11/16/2018 2:24 pm	Flr First Rm 64	1.3
3197392	3915508	11/13/2018 7:41 pm	11/16/2018 2:25 pm	Flr First Rm APR	0.6
3197393	3915583	11/13/2018 7:41 pm	11/16/2018 2:25 pm	Flr First Rm APR	0.4
3197394	3915629	11/13/2018 7:42 pm	11/16/2018 2:26 pm	Flr First Rm Kitchen	< 0.4
3197395	3915555	11/13/2018 7:43 pm	11/16/2018 2:26 pm	Flr First Rm Kitchen off	< 0.4
3197396	3915628	11/13/2018 7:43 pm	11/16/2018 2:27 pm	Flr First Rm 52	< 0.4
3197397	3915585	11/13/2018 7:44 pm	11/16/2018 2:27 pm	Flr First Rm 54	0.5
3197398	3915504	11/13/2018 7:45 pm	11/16/2018 2:28 pm	Flr First Rm 56	< 0.4

Comment: AMENDED REPORT for 3915543 on 1-7-19 to reflect that this device could not be retrieved.

Test Performed By: Not Indicated

Distributed by: Intertek-PSI (VA)

Date Received: 11/20/2018 Date Logged: 11/20/2018 Date Analyzed: 11/20/2018 Date Reported: 11/29/2018

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Forest Knolls Elementary Scho
10830 Eastwood Avenue
Silver Spring MD 20901

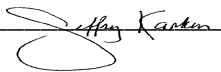
Log Number	Device Number	Test Exposure	Duration:	Area Tested	Result pCi/L
3197399	3915509	11/13/2018 7:48 pm	11/16/2018 2:28 pm	Flr First Rm Gym	2.2
3197400	3915554	11/13/2018 7:48 pm	11/16/2018 2:28 pm	Flr First Rm Gym	1.1
3197401	3915584	11/13/2018 7:49 pm	11/16/2018 2:29 pm	Flr First Rm 58A	1.5
3197402	3915590	11/13/2018 7:55 pm	11/16/2018 2:30 pm	Flr First Rm 1	0.6
3197403	3915549	11/13/2018 7:55 pm	11/16/2018 2:30 pm	Flr First Rm 1	< 0.4
3197404	3915552	11/13/2018 7:56 pm	11/16/2018 2:30 pm	Flr First Rm 1A	1.1
3197405	3915548	11/13/2018 7:56 pm	11/16/2018 2:31 pm	Flr First Rm 3	< 0.4
3197406	3917312	11/13/2018 6:27 pm	11/16/2018 11:02 am	Field Blank	< 0.4
3197407	3917313	11/13/2018 6:27 pm	11/16/2018 11:02 am	Field Blank	< 0.4
3197408	3917314	11/13/2018 6:27 pm	11/16/2018 11:02 am	Transit Blank	< 0.4
3197409	3917311	11/13/2018 6:00 am	11/16/2018 6:00 pm	Office Blank	< 0.4

Comment: AMENDED REPORT for 3915543 on 1-7-19 to reflect that this device could not be retrieved.

Test Performed By: Not Indicated

Distributed by: Intertek-PSI (VA)

Date Received: 11/20/2018 Date Logged: 11/20/2018 Date Analyzed: 11/20/2018 Date Reported: 11/29/2018

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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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:

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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

RADON SCREENING SURVEY – FOLLOW-UP FOREST KNOLLS ELEMENTARY SCHOOL

10830 Eastwood Avenue, Silver Spring, Maryland 20901

EXECUTIVE SUMMARY

Date of Test Report:	3/21/16 Follow-Up
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	4
# Rooms \geq 4.0 pCi/L:	0
Low Value:	0.8
High Value:	1.6
Confirmed Rooms \geq 4.0 pCi/L US EPA Action Level	0

Summary of Sampling Events \geq 4.0 pCi/L

Room	Result (pCi/L) 3/10/16 (Rev. 1 Initial)	Result (pCi/L) 3/21/16 Follow-Up	Average Result (pCi/L)
27A	--- Missing	0.8	0.8
4C	--- Missing	1.6	1.6
Café	--- Missing	1.3	1.3
Kitchen	--- Missing	1.2	1.2



MCPS RADON TESTING

Executive Summary: Forest Knolls Elementary School

Date of Test Report:	3/21/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	4
# Rooms \geq 4.0 pCi/L:	0
Low Value:	0.8
High Value:	1.6

Project Status:

Retesting completed; no further action at this time.



March 21, 2016

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

Re: **Radon Testing Services**
KCI Job # 12146341.29

Location: Forest Knolls Elementary School
10830 Eastwood 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 Forest Knolls Elementary School, located at 10830 Eastwood 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 February 22, 2016 and deployed five (5) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

KCI returned to the site on February 25, 2016 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936

Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

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

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

KCI also conducted observations of field conditions which could affect the results of the test and compiled weather data for the testing period. Note that strong storms and heavy rainfall were recorded during the test period. The unusual weather conditions may have resulted in atypical radon test results for this facility.

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

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

Results:

The results of the radon test analysis indicated the following:

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 0.3 pCi/L. Review of the duplicate sample analysis indicates that adequate laboratory measurement precision was achieved. The Spike sample analysis results indicate the laboratory is operating within statistical control limits.

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

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

Sincerely,



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

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank*

PM- Project Manager

QC- Quality Control

*Office blanks were submitted at a rate of 1% for all samples deployed in Phase 9 testing. Office blanks were not submitted under each school individually.

Radon Testing Results		
Forest Knolls Elementary School		
Test Period: 02/22/16-02/25/16		
Kit Number	Room / Area	Result
7735020	27A	0.8
7735011	4C	1.6
7735041	CAFETERIA	1.1
7735001	CAFETERIA	1.3
7735012	KITCHEN	1.2

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

March 17, 2016 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
**FOREST KNOLLS ELEMENTARY SCHOOL
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7735020	27A	2016-02-22 @ 2:00 pm	2016-02-25 @ 10:00 am	0.8 ± 0.4	2016-02-29
7735011	4C	2016-02-22 @ 2:00 pm	2016-02-25 @ 11:00 am	1.6 ± 0.4	2016-02-29
7735001	CAFETERIA	2016-02-22 @ 2:00 pm	2016-02-25 @ 11:00 am	1.3 ± 0.4	2016-02-29
7735041	CAFETERIA	2016-02-22 @ 2:00 pm	2016-02-25 @ 11:00 am	1.1 ± 0.3	2016-02-29
7735012	KITCHEN	2016-02-22 @ 2:00 pm	2016-02-25 @ 11:00 am	1.2 ± 0.4	2016-02-29

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

March 9, 2016 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
MCPS
Phase 9 Office Blanks

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

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

March 9, 2016 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
MCPS
Phase 9 Office Blanks

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7731626	0	2016-02-23 @ 2:00 pm	2016-02-26 @ 3:00 pm	< 0.3	2016-03-01
7731633	0	2016-02-23 @ 2:00 pm	2016-02-26 @ 3:00 pm	< 0.3	2016-03-01
7735204	0	2016-02-23 @ 2:00 pm	2016-02-26 @ 3:00 pm	< 0.3	2016-03-01

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

February 23, 2016
LABORATORY ANALYSIS REPORT

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

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

February
15,
2016

**** LABORATORY ANALYSIS
REPORT ****

Spike Sample Laboratory Results

Radon test result report for:
MCPS

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCF Technologies Inc. Job Number 173704

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

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

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

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

7718281, 7718282, 7718291, _____

7718288, 7718289, 7718273 _____

ε3 Left

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

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

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

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

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

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

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 9

Name of Schools:

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

	Date	Initials
Radon Test Kits Deployed	2/22/16	JM
Radon Test Kits Collected	2/25/16	JM
Radon Test Kits Shipped to Lab*	2/25/16	JM
Radon Test Kits Received by Lab*	2/29/16	JM

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 9

Name of Schools:

- | | |
|----------------------------|-------------------------|
| 1. Banneker MS | 10. Maryvale ES |
| 2. Bethesda-Chevy Chase HS | 11. Montgomery Blair HS |
| 3. Burtonsville ES | 12. Poolesville HS |
| 4. Chevy Chase ES | 13. Rachel Carson ES |
| 5. Clopper Mill ES | 14. Stedwick ES |
| 6. Edison HS | 15. Watkins Mill ES |
| 7. Flower Hill ES | 16. Laytonsville ES |
| 8. Flower Valley ES | 17. Lincoln Center |
| 9. Greencastle ES | |

	Date	Initials
Radon Test Kits Deployed	2/23/16	JM
Radon Test Kits Collected	2/26/16	JM
Radon Test Kits Shipped to Lab*	2/26/16	JM
Radon Test Kits Received by Lab*	3/01/16	JM

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



MCPS RADON TESTING

Executive Summary: Forest Knolls Elementary School

Date of Test Report:	3/10/2016 (Rev 1)
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	88
# Rooms \geq 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	3.2

Project Status:

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



March 10, 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 # 12146341.20

Location: Forest Knolls Elementary School
10830 Eastwood 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 Forest Knolls Elementary School, located at 10830 Eastwood 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 21, 2015 and deployed one hundred-seven (107) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

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

Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥ 4.0 pCi/L	none	n/a
< 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		
Forest Knolls ES		
Test Period: 12/21/15-12/24/15		
Kit Number	Room / Area	Result
7713558	1	2.1
7713562	1	1.8
7713564	3	< 0.3
7713570	4	< 0.3
7713507	6	< 0.3
7713516	7	0.8
7713514	8	1.2
7713511	9	0.8
7713518	10	1.3
7713517	11	1.2
7713521	12	< 0.3
7713520	13	0.7
7713515	14	< 0.3
7713524	15	< 0.3
7713550	16	0.7
7713546	17	0.9
7713544	18	0.8
7713551	19	0.8
7713548	20	< 0.3
7713540	21	1.0
7713545	22	0.7
7713547	23	1.1
7713543	24	< 0.3
7713552	25	0.8
7713549	26	< 0.3
7713556	27	0.8
7713554	28	< 0.3
7713559	29	0.6
7713557	30	0.7
7713561	31	0.7
7713560	32	0.8
7713601	33	< 0.3
7713555	34	1.0
7713583	37	< 0.3
7713584	38	0.9
7713582	39	1.5
7713587	40	1.3
7713519	52	1.2
7713523	54	1.5
7713525	58	1.5
7713527	59	2.6
7713526	60	2.0
7713529	61	2.2
7713530	64	1.8
7713528	65	2.6
7713539	67	1.7

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Forest Knolls ES		
Test Period: 12/21/15-12/24/15		
Kit Number	Room / Area	Result
7713532	68	2.3
7713536	70	1.5
7713534	71	1.9
7713538	73	2.2
7713537	74	1.6
7713541	78	2.1
7713542	83	2.0
7713553	* 27A (missing)	-
7713580	36 ART	1.3
7713569	3A	1.3
7713576	4 OFFICE	2.1
7713573	4A	0.7
7713571	* 4C (missing)	-
7713574	4D	0.8
7713531	68B	2.9
7713533	68C	2.6
7713512	ASSIST PRINCE	1.5
7713586	BLDG SERVICE	0.6
7713598	CAFE	0.6
7713600	CAFE	0.8
7713509	CONF A	1.7
7713577	CONTROL ROOM	2.3
7713506	CR1	1.6
7713591	GYM	1.3
7713595	GYM	1.1
7713588	GYM OFF	1.7
7713572	HEALTH	1.4
7713566	HEALTH STOR	1.1
7713603	KITCHEN	0.7
7713565	MAT PREP	3.2
7713568	MEDIA SPEC	2.3
7713563	MEDIA STOR	2.9
7713567	NURSE	1.4
7713505	OFFICE	1.4
7713513	PRINCIPAL	1.7
7713504	ROOM 5	1.0
7713585	SHOP	1.0
7713581	STAFF LOUNGE	1.8
7713535	STOR 81	1.9
7713579	STOR ACROSS COMP	< 0.3
7713522	STORAGE 12	1.2
7713575	STUDIO	2.1
7713503	T1	1.7
7713578	TELE STAFF LOUN	1.2
7713501	WORK ROOM	1.9

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Forest Knolls ES		
Test Period: 12/21/15-12/24/15		
Kit Number	QC Type	Result
7713609	D (11)	1.0
7713597	D (33)	< 0.3
7713593	D (37)	1.0
7713510	D (7)	0.9
7713607	D (8)	1.5
7713590	D (BLDG SERVICES)	0.5
7713596	* D (CAFE:missing)	-
7713589	D (GYM OFF)	1.3
7713592	D (GYM)	1.2
7713602	* D (KITCHEN:missing)	-
7713508	D (OFFICE)	1.7
7713599	FB (34)	< 0.3
7713594	FB (4)	< 0.3
7713604	FB (KITCHEN)	< 0.3
7713502	FB (WORK ROOM)	< 0.3
7707337	OB (0)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

January 12, 2016
LABORATORY ANALYSIS REPORT

Radon test result report for:
FOREST KNOLLS ES
1

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7707337	0	2015-12-21 @ 3:00 pm	2015-12-24 @ 12:00 pm	< 0.3	2015-12-28
7713558	1	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	2.1 ± 0.4	2015-12-28
7713562	1	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	1.8 ± 0.4	2015-12-28
7713518	10	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	1.3 ± 0.3	2015-12-28
7713517	11	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	1.2 ± 0.3	2015-12-28
7713609	11	2015-12-21 @ 11:00 am	2015-12-24 @ 6:00 am	1.0 ± 0.3	2015-12-28
7713521	12	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	< 0.3	2015-12-28
7713520	13	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	0.7 ± 0.3	2015-12-29
7713515	14	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	< 0.3	2015-12-28
7713524	15	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	< 0.3	2015-12-28
7713550	16	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	0.7 ± 0.3	2015-12-28
7713546	17	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	0.9 ± 0.3	2015-12-28
7713544	18	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	0.8 ± 0.3	2015-12-28
7713551	19	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	0.8 ± 0.3	2015-12-28
7713548	20	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	< 0.3	2015-12-28
7713540	21	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	1.0 ± 0.3	2015-12-28
7713545	22	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	0.7 ± 0.3	2015-12-29
7713547	23	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	1.1 ± 0.4	2015-12-29
7713543	24	2015-12-21 @ 9:00 am	2015-12-24 @ 7:00 am	< 0.3	2015-12-28
7713552	25	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	0.8 ± 0.3	2015-12-28
7713549	26	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	< 0.3	2015-12-29
7713556	27	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	0.8 ± 0.3	2015-12-28
7713553	27A	@	@		
7713554	28	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	< 0.3	2015-12-28
7713559	29	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	0.6 ± 0.3	2015-12-28
7713564	3	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	< 0.3	2015-12-28
7713557	30	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	0.7 ± 0.3	2015-12-29
7713561	31	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	0.7 ± 0.3	2015-12-28
7713560	32	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	0.8 ± 0.3	2015-12-28
7713597	33	2015-12-21 @ 11:00 am	2015-12-24 @ 7:00 am	< 0.3	2015-12-28
7713601	33	2015-12-21 @ 11:00 am	2015-12-24 @ 7:00 am	< 0.3	2015-12-28
7713599	34	2015-12-21 @ 11:00 am	2015-12-24 @ 7:00 am	< 0.3	2015-12-28
7713555	34	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	1.0 ± 0.4	2015-12-29
7713580	36 ART	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	1.3 ± 0.3	2015-12-28
7713583	37	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	< 0.3	2015-12-28
7713593	37	2015-12-21 @ 11:00 am	2015-12-24 @ 7:00 am	1.0 ± 0.3	2015-12-28
7713584	38	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	0.9 ± 0.3	2015-12-28

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

Radon test result report for:
FOREST KNOLLS ES
1

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7713582	39	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	1.5 ± 0.4	2015-12-28
7713569	3A	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	1.3 ± 0.3	2015-12-28
7713594	4	2015-12-21 @ 11:00 am	2015-12-24 @ 7:00 am	< 0.3	2015-12-28
7713570	4	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	< 0.3	2015-12-29
7713576	4 OFFICE	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	2.1 ± 0.4	2015-12-28
7713587	40	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	1.3 ± 0.3	2015-12-28
7713573	4A	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	0.7 ± 0.3	2015-12-28
7713571	4C	@	@		
7713574	4D	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	0.8 ± 0.3	2015-12-28
7713519	52	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	1.2 ± 0.3	2015-12-28
7713523	54	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	1.5 ± 0.4	2015-12-29
7713525	58	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	1.5 ± 0.4	2015-12-29
7713527	59	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	2.6 ± 0.4	2015-12-28
7713507	6	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	< 0.3	2015-12-28
7713526	60	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	2.0 ± 0.4	2015-12-28
7713529	61	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	2.2 ± 0.4	2015-12-28
7713530	64	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	1.8 ± 0.4	2015-12-28
7713528	65	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	2.6 ± 0.5	2015-12-29
7713539	67	2015-12-21 @ 9:00 am	2015-12-24 @ 7:00 am	1.7 ± 0.4	2015-12-28
7713532	68	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	2.3 ± 0.4	2015-12-28
7713531	68B	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	2.9 ± 0.4	2015-12-28
7713533	68C	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	2.6 ± 0.4	2015-12-28
7713516	7	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	0.8 ± 0.3	2015-12-28
7713510	7	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	0.9 ± 0.4	2015-12-29
7713536	70	2015-12-21 @ 9:00 am	2015-12-24 @ 7:00 am	1.5 ± 0.4	2015-12-29
7713534	71	2015-12-21 @ 9:00 am	2015-12-24 @ 7:00 am	1.9 ± 0.4	2015-12-29
7713538	73	2015-12-21 @ 9:00 am	2015-12-24 @ 7:00 am	2.2 ± 0.4	2015-12-28
7713537	74	2015-12-21 @ 9:00 am	2015-12-24 @ 7:00 am	1.6 ± 0.3	2015-12-28
7713541	78	2015-12-21 @ 9:00 am	2015-12-24 @ 7:00 am	2.1 ± 0.4	2015-12-28
7713514	8	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	1.2 ± 0.4	2015-12-28
7713607	8	2015-12-21 @ 11:00 am	2015-12-24 @ 6:00 am	1.5 ± 0.4	2015-12-28
7713542	83	2015-12-21 @ 9:00 am	2015-12-24 @ 7:00 am	2.0 ± 0.4	2015-12-29
7713511	9	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	0.8 ± 0.3	2015-12-28
7713512	ASSIST PRINCE	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	1.5 ± 0.4	2015-12-28
7713586	BLDG SERVICE	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	0.6 ± 0.3	2015-12-28
7713590	BLDG SERVICES	2015-12-21 @ 11:00 am	2015-12-24 @ 7:00 am	0.5 ± 0.4	2015-12-29
7713596	CAFE	@	@		

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

Radon test result report for:
FOREST KNOLLS ES
1

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7713598	CAFE	2015-12-21 @ 11:00 am	2015-12-24 @ 7:00 am	0.6 ± 0.3	2015-12-28
7713600	CAFE	2015-12-21 @ 11:00 am	2015-12-24 @ 7:00 am	0.8 ± 0.4	2015-12-29
7713509	CONF A	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	1.7 ± 0.3	2015-12-28
7713577	CONTROL ROOM	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	2.3 ± 0.4	2015-12-28
7713506	CR1	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	1.6 ± 0.3	2015-12-28
7713591	GYM	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	1.3 ± 0.3	2015-12-28
7713592	GYM	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	1.2 ± 0.3	2015-12-28
7713595	GYM	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	1.1 ± 0.3	2015-12-28
7713589	GYM OFF	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	1.3 ± 0.4	2015-12-28
7713588	GYM OFF	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	1.7 ± 0.4	2015-12-29
7713572	HEALTH	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	1.4 ± 0.3	2015-12-28
7713566	HEALTH STOR	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	1.1 ± 0.3	2015-12-28
7713602	KITCHEN	@	@		
7713603	KITCHEN	2015-12-21 @ 11:00 am	2015-12-24 @ 8:00 am	0.7 ± 0.3	2015-12-28
7713604	KITCHEN	2015-12-21 @ 11:00 am	2015-12-24 @ 7:00 am	< 0.3	2015-12-28
7713565	MAT PREP	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	3.2 ± 0.5	2015-12-28
7713568	MEDIA SPEC	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	2.3 ± 0.4	2015-12-28
7713563	MEDIA STOR	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	2.9 ± 0.5	2015-12-29
7713567	NURSE	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	1.4 ± 0.4	2015-12-29
7713505	OFFICE	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	1.4 ± 0.4	2015-12-28
7713508	OFFICE	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	1.7 ± 0.4	2015-12-29
7713513	PRINCIPAL	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	1.7 ± 0.4	2015-12-28
7713504	ROOM 5	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	1.0 ± 0.3	2015-12-28
7713585	SHOP	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	1.0 ± 0.4	2015-12-29
7713581	STAFF LOUNGE	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	1.8 ± 0.4	2015-12-28
7713535	STOR 81	2015-12-21 @ 9:00 am	2015-12-24 @ 7:00 am	1.9 ± 0.4	2015-12-28
7713579	STOR ACRSS COMP	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	< 0.3	2015-12-28
7713522	STORAGE 12	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	1.2 ± 0.4	2015-12-29
7713575	STUDIO	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	2.1 ± 0.4	2015-12-29
7713503	T1	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	1.7 ± 0.4	2015-12-28
7713578	TELE STAFF LOUN	2015-12-21 @ 10:00 am	2015-12-24 @ 7:00 am	1.2 ± 0.3	2015-12-28
7713501	WORK ROOM	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	1.9 ± 0.4	2015-12-28
7713502	WORK ROOM	2015-12-21 @ 9:00 am	2015-12-24 @ 6:00 am	< 0.3	2015-12-28

December
29,
2015

****LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
TRANSIT DEC 14 2015
NONE

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

December
23,
2015

**LABORATORY ANALYSIS
REPORT ****

Spike Sample Laboratory Results

Radon test result report for:

MCPS

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 173224

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

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

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

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

7706211, 7706366, _____

7706380, 7706381 _____

F3 Left

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

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

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

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

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

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

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



Chain of Custody

Project Name: MCPS Radon Phase II

School Names:

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

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

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