



MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	Greenwood Elementary School
Date of Test Report	1/04/2023
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	57
# Rooms \geq 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	2.6 pCi/L

Project Status:

1. 5-Year retesting completed



January 4, 2023

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

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

Location: Greenwood Elementary School
3336 Gold Mine Road
Brookeville, MD 20833

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 Greenwood Elementary School, located at 3336 Gold Mine Rd. Brookeville, MD 20833 (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 December 6, 2022 and deployed sixty-eight (68) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

KCI returned to the site on December 9, 2022 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc.

is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

These tests represent:

- Follow-up 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 low temperatures were in the 20s°F and high temperatures ranged to the mid-50s°F. Maximum sustained winds ranged from 0-12 miles per hour. Average humidity was around 75% with .04 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		
Greenwood ES		
Test Period: 12/06/2022 - 12/09/2022		
Kit Number	Room / Area	Result
11287988	1	< 0.3
11287993	2	1.2
11287989	3	< 0.3
11287998	3	1.5
11288000	3	0.9
11287996	4	1.0
11287970	5	0.6
11287997	6	0.9
11287995	7	1.1
11140169	8	0.7
11140151	9	0.6
11140152	10	0.9
11140153	11	< 0.3
11140163	12	0.7
11140164	12	0.8
11140165	12	< 0.3
11140168	13	1.0
11140171	14	1.0
11140172	15	2.6
11140156	16	1.4
11140167	17	0.7
11140147	18	< 0.3
11140148	19	0.8
11140160	20	< 0.3
11140166	20	< 0.3
11140154	21	0.8
11140150	22	< 0.3
11140101	32	0.9
11140113	33	0.9
11287977	36	1.1
11140177	38	0.6
11287990	39	1.0
11287991	39	< 0.3
11287978	40	0.9
11287972	41	0.5
11287987	44	0.8
11140159	45	1.2
11287980	46	0.8
11287979	48	0.5
11287994	50	< 0.3
11140146	57	0.6
11140144	59	< 0.3

Table 1- Radon Testing Results		
Greenwood ES		
Test Period: 12/06/2022 - 12/09/2022		
Kit Number	Room / Area	Result
11140143	61	< 0.3
11140145	62	< 0.3
11287992	42Q	1.2
11140138	APR	1.1
11140140	APR	0.8
11287984	ASSISTANT PRINCIPAL	0.8
11287983	CONFERENCE	< 0.3
11287985	COUNSELOR	1.2
11140178	FINANCE	< 0.3
11140170	GYM	< 0.3
11287969	GYM	0.9
11140161	GYM OFFICE	0.7
11140162	GYM OFFICE	< 0.3
11140157	HEALTH ROOM	0.9
11140139	KITCHEN	1.1
11287986	LEVY	1.4
11140173	MC	0.8
11140176	MC	< 0.3
11140158	MC OFFICE	< 0.3
11140174	MC OFFICE	< 0.3
11140175	MC OFFICE	< 0.3
11287982	OFFICE	0.7
11287981	OFFICE WORK ROOM	0.9
11140149	PRINCIPAL	1.0
11140155	STAFF LOUNGE	0.8
11140137	WORK ROOM	< 0.3

Table 2- Radon Testing Results			
Greenwood ES			
Test Period: 12/06/22 - 12/09/22			
Kit Number	QC Type	Room / Area	Result
11288000	D	3	0.9
11287989	FB	3	< 0.3
11140164	D	12	0.8
11140165	FB	12	< 0.3
11140160	D	20	< 0.3
11287991	D	39	< 0.3
11140162	D	Gym office	< 0.3
11140174	D	MC office	< 0.3
11140175	FB	MC office	< 0.3
11287676	OB	OFFICE BLANK	< 0.3
11287288	TB	TRAVEL BLANK	< 0.3

ATTACHMENT C

Laboratory Analytical Results

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11287988	1	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11140152	10	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.9 ± 0.4	2022-12-13
11140153	11	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11140164	12	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.8 ± 0.3	2022-12-13
11140165	12	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11140163	12	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.7 ± 0.3	2022-12-13
11140168	13	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	1.0 ± 0.3	2022-12-13
11140171	14	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	1.0 ± 0.3	2022-12-13
11140172	15	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	2.6 ± 0.4	2022-12-13
11140156	16	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	1.4 ± 0.4	2022-12-13
11140167	17	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.7 ± 0.3	2022-12-13
11140147	18	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11140148	19	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.8 ± 0.4	2022-12-13
11287993	2	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	1.2 ± 0.4	2022-12-13
11140166	20	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11140160	20	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11140154	21	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.8 ± 0.3	2022-12-13
11140150	22	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287989	3	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11288000	3	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.9 ± 0.3	2022-12-13
11287998	3	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	1.5 ± 0.4	2022-12-13
11140101	32	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.9 ± 0.4	2022-12-13
11140113	33	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.9 ± 0.3	2022-12-13
11287977	36	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	1.1 ± 0.4	2022-12-13
11140177	38	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.6 ± 0.3	2022-12-13
11287990	39	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	1.0 ± 0.3	2022-12-13
11287991	39	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287996	4	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	1.0 ± 0.3	2022-12-13
11287978	40	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.9 ± 0.4	2022-12-13
11287972	41	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.5 ± 0.3	2022-12-13
11287992	42Q	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	1.2 ± 0.3	2022-12-13
11287987	44	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.8 ± 0.3	2022-12-13
11140159	45	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	1.2 ± 0.3	2022-12-13
11287980	46	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.8 ± 0.3	2022-12-13
11287979	48	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.5 ± 0.3	2022-12-13
11287970	5	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.6 ± 0.4	2022-12-13
11287994	50	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13

Radon test result report for:

GREENWOOD ES**1**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11140146	57	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.6 ± 0.3	2022-12-13
11140144	59	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287997	6	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.9 ± 0.3	2022-12-13
11140143	61	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11140145	62	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287995	7	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	1.1 ± 0.3	2022-12-13
11140169	8	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.7 ± 0.3	2022-12-13
11140151	9	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.6 ± 0.3	2022-12-13
11140140	APR	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.8 ± 0.3	2022-12-13
11140138	APR	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	1.1 ± 0.3	2022-12-13
11287984	ASSISTABT PRINCIPAL	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.8 ± 0.4	2022-12-13
11287983	CONFERENCE	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287985	COUNSELOR	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	1.2 ± 0.4	2022-12-13
11140178	FINANCE	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287969	GYM	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.9 ± 0.3	2022-12-13
11140170	GYM	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11140162	GYM OFFICE	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11140161	GYM OFFICE	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.7 ± 0.3	2022-12-13
11140157	HEALTH ROOM	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.9 ± 0.3	2022-12-13
11140139	KITCHEN	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	1.1 ± 0.3	2022-12-13
11287986	LEVY	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	1.4 ± 0.4	2022-12-13
11140176	MC	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11140173	MC	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.8 ± 0.3	2022-12-13
11140158	MC OFFICE	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11140175	MC OFFICE	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11140174	MC OFFICE	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287982	OFFICE	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.7 ± 0.4	2022-12-13
11287981	OFFICE WORK ROOM	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.9 ± 0.3	2022-12-13
11140149	PRINCIPAL	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	1.0 ± 0.3	2022-12-13
11140155	STAFF LOUNGE	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.8 ± 0.3	2022-12-13
11140137	WORK ROOM	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13

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

MA MCPS - Spike Sample Lab Results. Measured values are satisfactory, i.e., within $\pm 25\%$ of the chamber's reference value (34.7 pCi/L).

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

Name of Schools:

1. Olney ES
2. Greenwood ES
3. John Poole MS
4. Monocacy ES
5. Beall ES
6. Fallsmead ES
7. Lakewood ES

	Date	Initials
Radon Test Kits Deployed	12/06/2022	BMM
Radon Test Kits Collected	12/09/2022	BMM
Radon Test Kits Shipped to Lab*	12/09/2022	BMM
Radon Test Kits Received by Lab*	12/13/2022	BMM

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



MCPS RADON TESTING - EXECUTIVE SUMMARY

Site Name	Greenwood Elementary School
Date of Report	March 12, 2018
Round of Testing	Initial Follow-up Post Remediation 2 year testing 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	5
# Rooms \geq 4.0 pCi/L	0
Lowest Value	0.8 pCi/L
Highest Value	1.7 pCi/L

Project Status

Current Project Status at this time: Retesting completed; no further action at this time.



March 12, 2018

Mr. Richard Cox, MS
Team Leader
Montgomery County Public Schools
Division of Maintenance
Gaithersburg, Maryland 20879

Re: Radon Testing Services

KCI Job #1214634188

Location: Greenwood Elementary School

3336 Gold Mine Rd.
Brookeville, Maryland 20833

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to Montgomery County Public Schools pursuant to completing a “short-term” 3-day radon test for the Greenwood Elementary School, located at 3336 Gold Mine Rd. in Brookeville, Maryland 20833 (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 13, 2018 and deployed six (6) 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.

KCI sampled the following locations during this follow-up test:

1. Rooms not successfully tested,
2. Rooms with elevated November 2017 results (i.e. ≥ 3.5 pCi/L).

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

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

KCI returned to the site on February 16, 2018 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Aircheck, Inc. for analysis by gamma-ray spectroscopy. Aircheck, Inc. is a NRSB certified analytical laboratory for radon analysis (certification #ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

EVALUATION OF TESTING CONDITIONS

These tests represent:

- Follow-up to HVAC upgrade testing.

These tests were conducted to:

- Evaluate radon concentrations following the installation of a new HVAC system.

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures ranged from the mid-20s to upper 40s and high temperatures ranged from the high-30s to the high-60s. Maximum sustained winds ranged from 10-18 miles per hour. Average humidity was around 73%. 0.30 Inches of precipitation was recorded during the 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). The laboratory analytical results are included in Attachment C. Laboratory results and exposure data for the spike samples are also included in Attachment C.

The results of the radon test analysis indicated the following:

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

Quality Control Samples	
Results of Blank Canisters:	The 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 410-316-7800.

Sincerely,



Radon Measurement Specialist
KCI Technologies, Inc.

Attachments:

B - Radon Test Summary Spreadsheets

C - Laboratory Analytical Results

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Table 1- Radon Testing Results		
Greenwood Elementary School		
Test Period: 02/13/18-02/16/18		
Kit Number	Room / Area	Result
7986564	3	0.8
7986583	34 ESOL	1.7
7986557	CONF RM 3 (Media center office)	1.4
7986556	KITCHEN	1.7
7986597	OFFICE CR2	1.0

Table Note:

* Missing or Compromised Sample

Table 2- Radon Testing Results		
Greenwood Elementary School		
Test Period: 02/13/18-02/16/18		
Kit Number	QC Type	Result
7986555	D (KITCHEN)	1.7

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

February 27, 2018

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**GREENWOOD ELEMENTARY SCHOOL
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7986564	3	2018-02-13 @ 12:00 pm	2018-02-16 @ 11:00 am	0.8 ± 0.3	2018-02-20
7986583	34 ESOL	2018-02-13 @ 11:00 am	2018-02-16 @ 11:00 am	1.7 ± 0.3	2018-02-20
7986557	CONF RM 3	2018-02-13 @ 12:00 pm	2018-02-16 @ 11:00 am	1.4 ± 0.3	2018-02-20
7986555	KITCHEN	2018-02-13 @ 12:00 pm	2018-02-16 @ 11:00 am	1.7 ± 0.3	2018-02-20
7986556	KITCHEN	2018-02-13 @ 12:00 pm	2018-02-16 @ 11:00 am	1.7 ± 0.3	2018-02-20
7986597	OFFICE CR2	2018-02-13 @ 12:00 pm	2018-02-16 @ 11:00 am	1.0 ± 0.3	2018-02-20

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase

Names of Schools:

- 1. Westbrook Elementary School
- 2. Westland Middle School
- 3. Walt Whitman High School
- 4. Cloverly Elementary School
- 5. Sligo Middle School
- 6. Flora Singer Elementary School
- 7. Albert Einstein High School
- 8. Roscoe Nix Elementary School
- 9. Mario Loiederman Middle School
- 10. Sargent Shriver Elementary School
- 11. Whetstone Elementary School
- 12. Brooke Grove Elementary School
- 13. Clearspring Elementary School
- 14. Beall Elementary School
- 15. Maryvale Elementary School
- 16. Lathrop E. Smith Center
- 17. Laytonsville Elementary School
- 18. Germantown Elementary School
- 19. Spring Mill Center
- 20. Northwood High School
- 21. E. Silver Spring Elementary School
- 22. Silver Spring Int. Middle School
- 23. Clarksburg High School
- 24. Rosa Parks Middle School
- 25. Greenwood Elementary School
- 26. Montgomery Knolls Elem. School
- 27. Watkins Mill Elementary School
- 28. Gaithersburg Elementary School
- 29. Viers Mill Elementary School
- 30. Rock View Elementary School

	Date	Initials
Radon Test Kits Deployed	2/13/18	JM
Radon Test Kits Collected	2/16/18	JM
Radon Test Kits Shipped to Lab*	2/16/18	JM
Radon Test Kits Received by Lab*	2/20/18	JM

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

Radon test result report for:
OFFICE BLANKS

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7979482	1	2018-02-13 @ 1:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986991	10	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985684	11	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986987	12	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986993	13	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986990	14	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7979485	2	2018-02-13 @ 1:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985686	3	2018-02-13 @ 1:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986995	4	2018-02-13 @ 1:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986989	5	2018-02-13 @ 1:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986998	6	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986986	7	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986985	8	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986997	9	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20

Radon test result report for:
TRANSIT BLANKS

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7984188	1	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7984044	10	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986582	11	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986999	12	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7987000	13	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7984196	14	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986996	2	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986994	3	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986992	4	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985680	5	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985698	6	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985699	7	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985700	8	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985872	9	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20

February 28, 2018

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

MCPS - Spike Sample Laboratory Results. Measured values are satisfactory, i.e. within $\pm 25\%$ of the chamber's reference value (20.9 pCi/L).

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7984181	1	2018-02-16 @ 11:00 am	2018-02-19 @ 11:00 am	19.7 \pm 0.8	2018-02-21
7986621	2	2018-02-16 @ 11:00 am	2018-02-19 @ 11:00 am	19.4 \pm 0.8	2018-02-21
7985683	3	2018-02-16 @ 11:00 am	2018-02-19 @ 11:00 am	19.5 \pm 0.8	2018-02-21
7984168	4	2018-02-16 @ 11:00 am	2018-02-19 @ 11:00 am	20.5 \pm 0.8	2018-02-21
7986618	5	2018-02-16 @ 11:00 am	2018-02-19 @ 11:00 am	19.9 \pm 0.8	2018-02-21
7984169	6	2018-02-16 @ 11:00 am	2018-02-19 @ 11:00 am	20.4 \pm 0.8	2018-02-21

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 183530

NOMINAL Conditions: Radon Conc 20.9 pCi/L Rel. Hum 49.8 % Temp. 79.1 F

Date Start: 2/16/18 Date Stop: 2/19/18 Date Start: _____ Date Stop: _____
 Time Start: 1052 Time Stop: 1052 Time Start: _____ Time Stop: _____
 Device No.'s: (6) Char. Bags Device No.'s: _____
7984181, 7986621, 7985683 _____
7984168, 7986618, 7984169 _____
G3 Middle

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



MCPS RADON TESTING - EXECUTIVE SUMMARY

Site Name	Greenwood Elementary School
Date of Report	February 2, 2018
Round of Testing	Initial Follow-up Post Remediation 2 year testing 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	54
# Rooms \geq 4.0 pCi/L	0
Lowest Value	< 0.3 pCi/L
Highest Value	3.0 pCi/L

Current Project Status at this time: Results satisfactory to date; missed locations to be sampled.



February 2, 2018

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

Re: Radon Testing Services

KCI Job #1214694182

Location: Greenwood Elementary School

3336 Gold Mine Rd.,
Brookeville, Maryland 20833

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to Montgomery County Public Schools pursuant to completing a “short-term” 3-day radon test for the Greenwood Elementary School, located at 3336 Gold Mine Rd., in Brookeville, Maryland 20833 (subject site).

SCOPE OF SERVICES

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

KCI visited the site on December 4, 2017 and deployed sixty-three (63) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Appendix A of this report.

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

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

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

EVALUATION OF TESTING CONDITIONS

These tests represent:

- HVAC upgrade testing.

These tests were conducted to:

- Evaluate radon concentrations following the installation of a new HVAC system.

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

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

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

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

RESULTS

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

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

The results of the radon test analysis indicated the following:

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

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

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

Sincerely,



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

Attachments:

B- Table 1-Radon Test Summary Spreadsheet

C- Laboratory Analytical Results

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Radon Testing Results		
Greenwood Elementary School		
Test Period: 12/04/17-12/07/17		
Kit Number	Room / Area	Result
7985823	1	1.2
7985824	2	0.8
7985825	4	1.5
7985861	5	1.2
7985826	6	1.0
7985860	7	1.1
7985827	8	1.1
7985835	9	1.4
7985836	10	1.3
7985837	11	1.3
7985839	12	1.8
7985840	13	1.1
7985841	14	1.8
7985842	15	1.1
7985843	16	1.9
7985858	17	0.9
7985844	18	1.1
7985857	19	1.6
7985845	20	1.6
7985856	21	0.9
7985846	22	1.5
7985811	30	1.8
7985810	32	1.4
7985809	36	1.3
7985813	38	0.9
7985814	39	1.2
7985816	40	1.4
7985822	41	0.8
7985817	42	1.2
7985818	44	1.2
7985819	46	2.0
7985820	48	0.7
7985821	50	1.1
7985834	57	< 0.3
7985833	59	1.1
7985832	61	0.6
7985828	62	1.0
7985812	34 ESOL	3.0
7985829	64 GYM	0.5
7985830	64 GYM	1.1
7985831	64A	1.1
7985847	APR CAFF.	1.1
7985848	APR CAFF.	1.6
7985849	ASST. PRINCIPAL	1.1
7985853	COMPUTER LAB	1.4
7985806	CONF. ROOM	0.7

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Greenwood Elementary School		
Test Period: 12/04/17-12/07/17		
Kit Number	Room / Area	Result
7985808	COUNSELOR	1.6
7985801	FRONT OFFICE	1.4
7985807	GEN. WORK OFFICE	1.6
7985803	HEALTH ROOM	1.2
7985850	MEDIA CENTER	1.3
7985851	MEDIA CENTER OFF	1.1
7985859	PARA ROOM	2.1
7985805	PRINCIPAL OFFICE	< 0.3
7985855	STAFF LOUNGE	1.1
7985854	WORK ROOM	< 0.3

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Greenwood Elementary School		
Test Period: 12/04/17-12/07/17		
Kit Number	QC Type	Result
7985838	D (11)	1.0
7985815	D (39)	1.0
7985862	D (COMPUTER LAB)	1.5
7985802	D (FRONT OFFICE)	1.1
7985804	FB (HEALTH ROOM)	< 0.3
7985852	FB (MEDIA CENTER OFF)	< 0.3
7975813	OB (OFFICE BLANK)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:

**GREENWOOD ELEMENTARY SCHOOL
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7985823	1	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	1.2 ± 0.4	2017-12-11
7985836	10	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	1.3 ± 0.4	2017-12-11
7985837	11	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	1.3 ± 0.4	2017-12-11
7985838	11	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	1.0 ± 0.4	2017-12-11
7985839	12	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	1.8 ± 0.4	2017-12-12
7985840	13	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	1.1 ± 0.4	2017-12-11
7985841	14	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	1.8 ± 0.4	2017-12-12
7985842	15	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	1.1 ± 0.4	2017-12-11
7985843	16	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	1.9 ± 0.4	2017-12-12
7985858	17	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	0.9 ± 0.4	2017-12-11
7985844	18	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	1.1 ± 0.4	2017-12-11
7985857	19	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	1.6 ± 0.4	2017-12-12
7985824	2	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	0.8 ± 0.4	2017-12-11
7985845	20	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	1.6 ± 0.4	2017-12-12
7985856	21	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	0.9 ± 0.4	2017-12-11
7985846	22	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	1.5 ± 0.4	2017-12-11
7985811	30	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	1.8 ± 0.4	2017-12-12
7985810	32	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	1.4 ± 0.4	2017-12-11
7985812	34 ESOL	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	3.0 ± 0.5	2017-12-12
7985809	36	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	1.3 ± 0.4	2017-12-11
7985813	38	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	0.9 ± 0.4	2017-12-12
7985815	39	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	1.0 ± 0.4	2017-12-12
7985814	39	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	1.2 ± 0.4	2017-12-12
7985825	4	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	1.5 ± 0.4	2017-12-11
7985816	40	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	1.4 ± 0.4	2017-12-12
7985822	41	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	0.8 ± 0.4	2017-12-12
7985817	42	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	1.2 ± 0.4	2017-12-11
7985818	44	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	1.2 ± 0.4	2017-12-12
7985819	46	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	2.0 ± 0.4	2017-12-11
7985820	48	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	0.7 ± 0.3	2017-12-11
7985861	5	2017-12-04 @ 10:00 am	2017-12-07 @ 8:00 am	1.2 ± 0.4	2017-12-11
7985821	50	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	1.1 ± 0.4	2017-12-12
7985834	57	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	< 0.3	2017-12-12
7985833	59	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	1.1 ± 0.4	2017-12-11
7985826	6	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	1.0 ± 0.4	2017-12-11
7985832	61	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	0.6 ± 0.3	2017-12-11
7985828	62	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	1.0 ± 0.4	2017-12-12

Radon test result report for:

**GREENWOOD ELEMENTARY SCHOOL
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7985829	64 GYM	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	0.5 ± 0.3	2017-12-11
7985830	64 GYM	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	1.1 ± 0.3	2017-12-11
7985831	64A	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	1.1 ± 0.3	2017-12-11
7985860	7	2017-12-04 @ 10:00 am	2017-12-07 @ 8:00 am	1.1 ± 0.4	2017-12-12
7985827	8	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	1.1 ± 0.4	2017-12-11
7985835	9	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	1.4 ± 0.4	2017-12-11
7985847	APR CAFF.	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	1.1 ± 0.4	2017-12-11
7985848	APR CAFF.	2017-12-04 @ 11:00 am	2017-12-07 @ 11:00 am	1.6 ± 0.4	2017-12-12
7985849	ASST. PRINCIPAL	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	1.1 ± 0.4	2017-12-12
7985862	COMPUTER LAB	2017-12-04 @ 10:00 am	2017-12-07 @ 8:00 am	1.5 ± 0.4	2017-12-11
7985853	COMPUTER LAB	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	1.4 ± 0.4	2017-12-12
7985806	CONF. ROOM	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	0.7 ± 0.4	2017-12-11
7985808	COUNSELOR	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	1.6 ± 0.4	2017-12-12
7985801	FRONT OFFICE	2017-12-04 @ 8:00 am	2017-12-07 @ 7:00 am	1.4 ± 0.4	2017-12-11
7985802	FRONT OFFICE	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	1.1 ± 0.4	2017-12-12
7985807	GEN. WORK OFFICE	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	1.6 ± 0.4	2017-12-12
7985804	HEALTH ROOM	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	< 0.3	2017-12-11
7985803	HEALTH ROOM	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	1.2 ± 0.4	2017-12-12
7985850	MEDIA CENTER	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	1.3 ± 0.3	2017-12-11
7985851	MEDIA CENTER OFF	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	1.1 ± 0.4	2017-12-11
7985852	MEDIA CENTER OFF	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	< 0.3	2017-12-12
7975813	OFFICE BLANK	2017-12-04 @ 11:00 am	2017-12-07 @ 11:00 am	< 0.3	2017-12-12
7985859	PARA ROOM	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	2.1 ± 0.4	2017-12-11
7985805	PRINCIPAL OFFICE	2017-12-04 @ 8:00 am	2017-12-07 @ 8:00 am	< 0.3	2017-12-11
7985855	STAFF LOUNGE	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	1.1 ± 0.4	2017-12-11
7985854	WORK ROOM	2017-12-04 @ 9:00 am	2017-12-07 @ 8:00 am	< 0.3	2017-12-11



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase

Names of Schools:

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

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

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

Radon test result report for:**TRANSIT 2
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7193838	TRANSIT 1	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979384	TRANSIT 10	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979385	TRANSIT 11	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7984056	TRANSIT 12	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7983834	TRANSIT 13	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7194097	TRANSIT 14	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7194092	TRANSIT 15	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7193840	TRANSIT 16	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979072	TRANSIT 17	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979071	TRANSIT 18	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979065	TRANSIT 19	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	0.6 ± 0.4	2017-12-13
7978194	TRANSIT 2	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7985660	TRANSIT 20	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7985661	TRANSIT 21	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	0.7 ± 0.4	2017-12-13
7193843	TRANSIT 22	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7984055	TRANSIT 23	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7983813	TRANSIT 24	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7983827	TRANSIT 25	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7978193	TRANSIT 3	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7978189	TRANSIT 4	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	0.5 ± 0.4	2017-12-13
7986187	TRANSIT 5	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7986188	TRANSIT 6	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7986177	TRANSIT 7	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979077	TRANSIT 8	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979386	TRANSIT 9	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13

December 19, 2017

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 182393

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

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

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

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

7975075, 7975064, 7975063, _____

7975065, 7975069, 7975070 _____

F4 Right

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

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

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

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

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

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

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



MCPS RADON TESTING

Executive Summary: Greenwood Elementary School

Date of Test Report:	3/10/2016 (Rev 1)
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	54
# Rooms \geq 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	1.9

Project Status:

Initial testing completed; no further action at this time.



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 # 12146341.22

Location: Greenwood Elementary School
3336 Gold Mine Road
Brookeville, MD 20833

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 Greenwood Elementary School, located at 3336 Gold Mine Road in Brookeville, Maryland 20833 (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 28, 2015 and deployed sixty-four (64) 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 31, 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		
Greenwood ES		
Test Period: 12/28/15-12/31/15		
Kit Number	Room / Area	Result
7713083	1	1.3
7711353	2	0.8
7711357	3	1.0
7711346	4	0.9
7711354	5	0.7
7711348	6	1.0
7711344	7	< 0.3
7711322	8	1.7
7711323	9	1.7
7711331	10	< 0.3
7711327	11	< 0.3
7711350	12	0.7
7711335	13	1.4
7711337	14	0.6
7711338	15	0.8
7711333	16	1.3
7711341	17	0.7
7711342	18	1.1
7711332	19	< 0.3
7711301	20	1.1
7711336	21	< 0.3
7711340	22	1.1
7713100	30	1.2
7713092	32	1.0
7713097	34	1.4
7713076	36	1.1
7713095	38	1.0
7713089	39	0.8
7713093	40	< 0.3
7713981	41	1.0
7713096	42	0.9
7713094	44	0.9
7713060	46	1.9
7712683	48	1.2
7713998	50	< 0.3
7711325	57	0.6
7711326	59	0.7
7711330	61	0.8
7711328	62	0.9
7711321	64A	1.1
7713091	ASST PRINCIPLE	0.8
7711302	CAFE	1.2
7711303	CAFE	0.9
7713087	CONFERENCE	1.0
7713982	CONFERENCE ROOM3	0.7
7713062	ESOL	1.2

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Greenwood ES		
Test Period: 12/28/15-12/31/15		
Kit Number	Room / Area	Result
7711351	GYM	< 0.3
7711352	GYM	0.6
7713084	HEALTH ROOM	0.7
7711349	LIBRARY	0.9
7711358	LIBRARY	< 0.3
7713099	MAIN	0.8
7713080	OFFICE CR2	1.5
7711324	PARAEDU	< 0.3
7713090	PRINCIPLE	< 0.3
7711339	STAFF LOUNGE	< 0.3
7711355	WORK ROOM	0.8

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Greenwood ES		
Test Period: 12/28/15-12/31/15		
Kit Number	QC Type	Result
7711334	D (11)	0.6
7711305	D (22)	1.2
7711345	D (3)	1.0
7713098	D (32)	1.2
7713979	FB (OFFICE CR2)	< 0.3
7711329	FB (STAFF LOUNGE)	< 0.3
7711306	OB (0)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

January 16, 2016
LABORATORY ANALYSIS REPORT

Radon test result report for:
GREENWOOD ES MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7711306	0	2015-12-28 @ 4:00 pm	2015-12-31 @ 12:00 pm	< 0.3	2016-01-05
7713083	1	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	1.3 ± 0.3	2016-01-04
7711331	10	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7711327	11	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7711334	11	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	0.6 ± 0.3	2016-01-05
7711350	12	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	0.7 ± 0.4	2016-01-05
7711335	13	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	1.4 ± 0.4	2016-01-05
7711337	14	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	0.6 ± 0.3	2016-01-05
7711338	15	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	0.8 ± 0.3	2016-01-04
7711333	16	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	1.3 ± 0.4	2016-01-05
7711341	17	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	0.7 ± 0.3	2016-01-05
7711342	18	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	1.1 ± 0.3	2016-01-04
7711332	19	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7711353	2	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	0.8 ± 0.4	2016-01-05
7711301	20	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	1.1 ± 0.3	2016-01-04
7711336	21	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7711305	22	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	1.2 ± 0.4	2016-01-05
7711340	22	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	1.1 ± 0.4	2016-01-05
7711357	3	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	1.0 ± 0.3	2016-01-04
7711345	3	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	1.0 ± 0.3	2016-01-04
7713100	30	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	1.2 ± 0.4	2016-01-05
7713092	32	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	1.0 ± 0.4	2016-01-05
7713098	32	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	1.2 ± 0.4	2016-01-05
7713097	34	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	1.4 ± 0.3	2016-01-04
7713062	ESOL	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	1.2 ± 0.3	2016-01-04
7713076	36	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	1.1 ± 0.4	2016-01-05
7713095	38	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	1.0 ± 0.3	2016-01-04
7713089	39	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	0.8 ± 0.3	2016-01-04
7711346	4	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	0.9 ± 0.3	2016-01-04
7713093	40	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-05
7713981	41	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	1.0 ± 0.3	2016-01-04
7713096	42	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	0.9 ± 0.3	2016-01-04
7713094	44	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	0.9 ± 0.3	2016-01-04
7713060	46	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	1.9 ± 0.4	2016-01-05
7712683	48	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	1.2 ± 0.4	2016-01-05
7711354	5	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	0.7 ± 0.4	2016-01-05
7713998	50	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-05

January
16,
2016

**LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**GREENWOOD ES
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7711325	57	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	0.6 ± 0.4	2016-01-05
7711326	59	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	0.7 ± 0.3	2016-01-04
7711348	6	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	1.0 ± 0.4	2016-01-05
7711330	61	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	0.8 ± 0.3	2016-01-04
7711328	62	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	0.9 ± 0.4	2016-01-05
7711321	64A	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	1.1 ± 0.4	2016-01-05
7711344	7	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7711322	8	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	1.7 ± 0.4	2016-01-04
7711323	9	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	1.7 ± 0.4	2016-01-04
7713091	ASST PRINCIPLE	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	0.8 ± 0.4	2016-01-05
7711302	CAFE	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	1.2 ± 0.3	2016-01-04
7711303	CAFE	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	0.9 ± 0.3	2016-01-04
7713087	CONFERENCE	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	1.0 ± 0.4	2016-01-05
7713982	CONFERENCE ROOM3	2015-12-28 @ 2:00 pm	2015-12-31 @ 10:00 am	0.7 ± 0.4	2016-01-05
7711351	GYM	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-04
7711352	GYM	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	0.6 ± 0.4	2016-01-05
7713084	HEALTH ROOM	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	0.7 ± 0.4	2016-01-05
7711349	LIBRARY	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	0.9 ± 0.3	2016-01-04
7711358	LIBRARY	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7713099	MAIN	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	0.8 ± 0.3	2016-01-04
7713080	OFFICE CR2	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	1.5 ± 0.4	2016-01-04
7713979	OFFICE CR2	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-05
7711324	PARAEDU	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7713090	PRINCIPLE	2015-12-28 @ 1:00 pm	2015-12-31 @ 10:00 am	< 0.3	2016-01-05
7711329	STAFF LOUNGE	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-04
7711339	STAFF LOUNGE	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7711355	WORK ROOM	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	0.8 ± 0.3	2016-01-04

January 15, 2016
** LABORATORY ANALYSIS REPORT **

Radon test result report for:
**MCPS PHASE 3 & 4
TRANSIT BLANKS**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7708218	TRANSIT 4	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708200	TRANSIT 1	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708190	TRANSIT 10	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708189	TRANSIT 11	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708191	TRANSIT 12	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708188	TRANSIT 13	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708197	TRANSIT 14	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708186	TRANSIT 15	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708185	TRANSIT 16	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708184	TRANSIT 17	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708182	TRANSIT 18	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708187	TRANSIT 18	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708199	TRANSIT 2	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708181	TRANSIT 20	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708180	TRANSIT 21	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708183	TRANSIT 22	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708178	TRANSIT 23	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708179	TRANSIT 24	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708177	TRANSIT 25	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708176	TRANSIT 26	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708174	TRANSIT 27	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708173	TRANSIT 28	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708175	TRANSIT 29	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708198	TRANSIT 3	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708172	TRANSIT 30	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708194	TRANSIT 5	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708196	TRANSIT 6	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708193	TRANSIT 7	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708192	TRANSIT 8	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708195	TRANSIT 9	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23

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 III

Name of Schools:

- | | | |
|-----------------------|-----------------------|-----------------------|
| 1. Burnt Mills ES | 13. Georgian Frost ES | 25. Northlake Center |
| 2. Burtonsville ES | 14. Germantown ES | 26. Olney ES |
| 3. Cedar Grove ES | 15. Goshen ES | 27. Rosa Parks MS |
| 4. Cloverly ES | 16. Greencastle ES | 28. Poolesville ES |
| 5. Cold Spring ES | 17. Greenwood ES | 29. Poolesville HS |
| 6. Damascus HS | 18. Lake Seneca ES | 30. Potomac ES |
| 7. Darnestown ES | 19. Laytonsville ES | 31. Rock Terrace HS |
| 8. Diamond ES | 20. Col. E. Brooke MS | 32. Rosemary Hills ES |
| 9. Charles R. Drew ES | 21. Luxmanor ES | 33. Carl Sandburg |
| 10. DuFief ES | 22. Magruder HS | 34. Sequoyah ES |
| 11. Thomas Edison HS | 23. Thur. Marshall ES | 35. Stedwick ES |
| 12. Robert Frost MS | 24. Monocacy ES | 36. Whetstone ES |

	Date	Initials
Radon Test Kits Deployed	12/28/15	JM
Radon Test Kits Sampled	12/31/15	JM
Radon Test Kits Shipped to Lab*	12/31/15	JM
Radon Test Kits Received by Lab*	1/4/16	JM

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