



MCPS RADON TESTING - EXECUTIVE SUMMARY

Site Name	Snowden Farms Elementary School
Date of Report	2/28/2020
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	3
# Rooms \geq 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	0.5 pCi/L

Project Status

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



2/28/2020

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

Re: Radon Testing Services

KCI Job #1214634188

Location: Snowden Farms Elementary School

22500 Sweetspire Drive
Clarksburg, Maryland 20871

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 Snowden Farms Elementary School, located at 22500 Sweetspire Drive in Clarksburg, Maryland 20871 (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 #111004 RT) 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 2/3/2020 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.

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

1. Rooms with missing test kits from the December 2019 testing period (i.e. test kit was deployed but not recovered),

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2. Rooms with invalidated test kits from the December 2019 testing period (e.g. an open window in the room or disturbed test kit),
 3. Rooms which were locked/inaccessible during the December 2019 testing period,
 4. Rooms with elevated December 2019 results (i.e. ≥ 3.5 pCi/L),
 5. Rooms previously tested for radon but not tested in December 2019, and
 6. Additional rooms that require testing (if applicable.)

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 2/6/2020 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 initial testing.

These tests were conducted to:

- Evaluate radon concentrations 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 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-30s to the low-50s; and high temperatures ranged from the upper-40s to the mid-60s. Maximum sustained winds ranged from 13-21 miles per hour. Average humidity was approximately 76%. A total of 1.09 Inches of rain were recorded during the testing period. The weather conditions during the testing period may have resulted in atypical radon test results for this facility.

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). Follow-up 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	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,

Mr. Tyler P. McCleaf
 Radon Measurement Provider
 KCI Technologies, Inc.

Attachments:

A- Floor Plan with Test Locations

B - Tables 1-3, Radon Test Summary Spreadsheets

C- Laboratory Analytical Results

ATTACHMENT A

Floor Plan With Test Locations

Floor Plan Legend

X-Sample Location (in red)

X- Previous Sample Location

1- Not Samled; No Ground Contact

2- Not Samled; Unoccupied (e.g. Storage, Mechanical)

3- Not Samled; High Humidity/Moisture

4- Not Samled; Bathroom/Hallway

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		
Snowden Farms Elementary School		
Test Period: 02/03/20-02/06/20		
Kit Number	Room / Area	Result
9348524	104A	<0.3
9348554	110B	0.5
9348553	124A	<0.3
9334909	OFFICE BLANK	<0.3
9334910	OFFICE BLANK	<0.3

Table 2- Radon Testing Results			
Snowden Farms Elementary School			
Test Period: 02/03/20-02/06/20			
Kit Number	QC Type	Room / Area	Result
9334902	TRANSIT BLANK	NA	<0.3

ATTACHMENT C

Laboratory Analytical Results

February 11, 2020

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
SNOWDEN ES
347

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9348524	104A	2020-02-04 @ 9:00 am	2020-02-07 @ 8:00 am	< 0.3	2020-02-11
9348554	110B	2020-02-04 @ 9:00 am	2020-02-07 @ 8:00 am	0.5 ± 0.3	2020-02-11
9348553	124A	2020-02-04 @ 9:00 am	2020-02-07 @ 8:00 am	< 0.3	2020-02-11

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 194523

NOMINAL Conditions: Radon Conc 25.8 pCi/L Rel. Hum 49.8 % Temp. 70.2 F

Date Start: 2/21/20 Date Stop: 2/24/20 Date Start: _____ Date Stop: _____

Time Start: 0745 Time Stop: 0745 Time Start: _____ Time Stop: _____

Device No.'s: (9) Char Bags - Device No.'s: _____

9341725 thru 9341733

52 ccp

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

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

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

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

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

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

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

Radon test result report for:

MCPS - Spike Sample Lab Results. Measured values are satisfactory, i.e., within $\pm 25\%$ of the chamber's reference value (25.7 pCi/L).

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9341725	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.9 \pm 1.6	2020-02-26
9341730	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.1 \pm 1.6	2020-02-26
9341728	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.9 \pm 1.6	2020-02-26
9341726	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	25.8 \pm 1.5	2020-02-26
9341731	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	25.1 \pm 1.5	2020-02-26
9341729	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.2 \pm 1.6	2020-02-26
9341727	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	27.2 \pm 1.6	2020-02-26
9341732	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	27.3 \pm 1.6	2020-02-26



Radon Test Kit Chain of Custody

Project Name: MCPS Radon 2019 Week 1 Retesting

Name of Schools:

1. Belmont E.S.
2. Clarksburg H.S.
3. Damascus E.S.
4. Damascus H.S.
5. DuFief E.S.
6. Fields Road E.S.
7. Gaithersburg E.S.
8. McAuliffe E.S.
9. Quince Orchard H.S.
10. Snowden Farms E.S.
11. South Lake E.S.
12. Stone Mill E.S.
13. Travilah ES
14. Watkins Mill ES
15. Whitman H.S.

	Date	Initials
Radon Test Kits Deployed	02/03/20 to 02/04/20	JM
Radon Test Kits Collected	02/06/20 to 02/07/20	JM
Radon Test Kits Shipped to Lab*	02/07/20	JM
Radon Test Kits Received by Lab*	02/10/20	JM

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



MCPS RADON TESTING - EXECUTIVE SUMMARY

Site Name	Snowden Farms Elementary School
Date of Report	1/28/2020
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	48
# Rooms \geq 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.8 pCi/L

Project Status

Current Project Status at this time: Testing Complete; missing/compromised tests to be sampled.



1/28/2020

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

Re: Radon Testing Services

KCI Job #12146341126

Location: Snowden Farms Elementary School

22500 Sweetspire Drive
Clarksburg, Maryland 20871

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 Snowden Farms Elementary School, located at 22500 Sweetspire Drive in Clarksburg, Maryland 20871 (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/departments/facilities/maintenance/default.aspx?id=458858> or www.epa.gov/radon.

KCI visited the site on 12/10/2019 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 sixty (60) 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 12/13/2019 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:

- Initial Testing

These tests were conducted to:

- Evaluate radon concentrations at the facility.

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- 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 upper-30s and high temperatures ranged from the upper-30s to the mid-50s. Maximum sustained winds ranged from 7-21 miles per hour. Average humidity was around 75%. 0.52 inches of precipitation (rain) 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). 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.

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Sincerely,

Mr. Tyler P. McCleaf
Radon Measurement Provider
111004 RT

KCI Technologies, Inc.

Attachments:

A- Floor Plan with Test Locations

B - Tables 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:

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ACI- Air Chek, Inc.

D- Duplicate

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KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Table 1- Radon Testing Results		
Snowden Farms Elementary School		
Test Period: 12/10/2019-12/13/2019		
Kit Number	Room / Area	Result
9334997	OFFICE BLANK	< 0.3
9335219	170	0.5
9335220	168	0.7
9335221	168	0.5
9335222	164	0.6
9335223	162	0.6
9335224	158	0.9
9335225	154	< 0.3
9335226	150	< 0.3
9335227	148	< 0.3
9335228	144	< 0.3
9335229	140	< 0.3
9335230	134	0.7
9335231	134	0.9
9335232	128	1.6
9335233	128	< 0.3
9335234	128B	1.3
9335235	128A	1.8
9335236	126	1.6
9335237	130	0.8
9335238	124	< 0.3
9335239	120	< 0.3
9335240	121	< 0.3
9335241	121	< 0.3
9335242	125	< 0.3
9335243	133	< 0.3
9335244	135	0.8
9335245	139	0.8
9335246	151	< 0.3
9335247	105A	< 0.3
9335248	105	< 0.3
9335249	105	< 0.3
9335250	109	0.5
9335251	109	< 0.3
9335252	180	1.1
9335253	180	< 0.3
9335254	182	< 0.3
9335255	184	0.6
9335256	186	< 0.3
9335257	181	< 0.3
9335258	181	< 0.3
9335259	181A	< 0.3
9335260	104	0.7
9335261	104	< 0.3
9335262	104	< 0.3
9335263	108H	0.5
9335264	106	0.6
9335265	100C	< 0.3
9335266	100F	< 0.3
9335267	100E	0.7

9335268	100D	< 0.3
9335269	100	< 0.3
9335270	102	< 0.3
9335271	102	< 0.3
9335272	102B	< 0.3
9335273	102B	< 0.3
9335274	102C	< 0.3
9335275	256	0.5
9335276	238	< 0.3
9335277	218	< 0.3
9335278	206	< 0.3
9335279	206	< 0.3
9335703	UNKNOWN	MISSING

Table 2- Radon Testing Results			
Snowden Farms Elementary School			
Test Period: 12/10/2019-12/13/2019			
Kit Number	QC Type	Room / Area	Result
9335221	D	168	0.5
9335231	D	134	0.9
9335233	FB	128	<0.3
9335241	D	121	<0.3
9335251	D	109	<0.3
9335253	FB	180	<0.3
9335261	D	104	<0.3
9335271	D	102	<0.3
9335273	FB	102B	<0.3
9335279	D	206	<0.3
9334850	TRANSIT BLANK	NA	< 0.3
9334914	TRANSIT BLANK	NA	< 0.3
9334916	TRANSIT BLANK	NA	< 0.3
9334963	TRANSIT BLANK	NA	< 0.3

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9335269	100	2019-12-10 @ 10:00 am	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9335265	100C	2019-12-10 @ 10:00 am	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9335268	100D	2019-12-10 @ 10:00 am	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9335267	100E	2019-12-10 @ 10:00 am	2019-12-13 @ 10:00 am	0.7 ± 0.3	2019-12-16
9335266	100F	2019-12-10 @ 10:00 am	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9335271	102	2019-12-10 @ 10:00 am	2019-12-13 @ 9:00 am	< 0.3	2019-12-16
9335270	102	2019-12-10 @ 10:00 am	2019-12-13 @ 9:00 am	< 0.3	2019-12-16
9335272	102B	2019-12-10 @ 10:00 am	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9335273	102B	2019-12-10 @ 10:00 am	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9335274	102C	2019-12-10 @ 10:00 am	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9335261	104	2019-12-10 @ 10:00 am	2019-12-13 @ 9:00 am	< 0.3	2019-12-16
9335262	104	2019-12-10 @ 10:00 am	2019-12-13 @ 9:00 am	< 0.3	2019-12-16
9335260	104	2019-12-10 @ 10:00 am	2019-12-13 @ 9:00 am	0.7 ± 0.3	2019-12-16
9335249	105	2019-12-10 @ 9:00 am	2019-12-13 @ 9:00 am	< 0.3	2019-12-16
9335248	105	2019-12-10 @ 9:00 am	2019-12-13 @ 9:00 am	< 0.3	2019-12-16
9335247	105A	2019-12-10 @ 9:00 am	2019-12-13 @ 9:00 am	< 0.3	2019-12-16
9335264	106	2019-12-10 @ 10:00 am	2019-12-13 @ 10:00 am	0.6 ± 0.3	2019-12-16
9335263	108H	2019-12-10 @ 10:00 am	2019-12-13 @ 10:00 am	0.5 ± 0.3	2019-12-16
9335251	109	2019-12-10 @ 9:00 am	2019-12-13 @ 9:00 am	< 0.3	2019-12-16
9335250	109	2019-12-10 @ 9:00 am	2019-12-13 @ 9:00 am	0.5 ± 0.3	2019-12-16
9335239	120	2019-12-10 @ 9:00 am	2019-12-13 @ 9:00 am	< 0.3	2019-12-16
9335240	121	2019-12-10 @ 9:00 am	2019-12-13 @ 8:00 am	< 0.3	2019-12-16
9335241	121	2019-12-10 @ 9:00 am	2019-12-13 @ 8:00 am	< 0.3	2019-12-16
9335238	124	2019-12-10 @ 9:00 am	2019-12-13 @ 8:00 am	< 0.3	2019-12-16
9335242	125	2019-12-10 @ 9:00 am	2019-12-13 @ 8:00 am	< 0.3	2019-12-16
9335236	126	2019-12-10 @ 8:00 am	2019-12-13 @ 9:00 am	1.6 ± 0.3	2019-12-16
9335232	128	2019-12-10 @ 8:00 am	2019-12-13 @ 8:00 am	1.6 ± 0.4	2019-12-16
9335233	128	2019-12-10 @ 8:00 am	2019-12-13 @ 8:00 am	< 0.3	2019-12-16
9335235	128A	2019-12-10 @ 8:00 am	2019-12-13 @ 9:00 am	1.8 ± 0.3	2019-12-16
9335234	128B	2019-12-10 @ 8:00 am	2019-12-13 @ 9:00 am	1.3 ± 0.3	2019-12-16
9335237	130	2019-12-10 @ 9:00 am	2019-12-13 @ 10:00 am	0.8 ± 0.3	2019-12-16
9335243	133	2019-12-10 @ 9:00 am	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9335230	134	2019-12-10 @ 8:00 am	2019-12-13 @ 9:00 am	0.7 ± 0.3	2019-12-16
9335231	134	2019-12-10 @ 8:00 am	2019-12-13 @ 9:00 am	0.9 ± 0.3	2019-12-16
9335244	135	2019-12-10 @ 9:00 am	2019-12-13 @ 9:00 am	0.8 ± 0.3	2019-12-16
9335245	139	2019-12-10 @ 9:00 am	2019-12-13 @ 9:00 am	0.8 ± 0.3	2019-12-16
9335229	140	2019-12-10 @ 8:00 am	2019-12-13 @ 9:00 am	< 0.3	2019-12-16

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9335228	144	2019-12-10 @ 8:00 am	2019-12-13 @ 9:00 am	< 0.3	2019-12-16
9335227	148	2019-12-10 @ 8:00 am	2019-12-13 @ 9:00 am	< 0.3	2019-12-16
9335226	150	2019-12-10 @ 8:00 am	2019-12-13 @ 9:00 am	< 0.3	2019-12-16
9335246	151	2019-12-10 @ 9:00 am	2019-12-13 @ 9:00 am	< 0.3	2019-12-16
9335225	154	2019-12-10 @ 8:00 am	2019-12-13 @ 9:00 am	< 0.3	2019-12-16
9335224	158	2019-12-10 @ 8:00 am	2019-12-13 @ 9:00 am	0.9 ± 0.3	2019-12-16
9335223	162	2019-12-10 @ 8:00 am	2019-12-13 @ 9:00 am	0.6 ± 0.3	2019-12-16
9335222	164	2019-12-10 @ 8:00 am	2019-12-13 @ 9:00 am	0.6 ± 0.3	2019-12-16
9335220	168	2019-12-10 @ 8:00 am	2019-12-13 @ 9:00 am	0.7 ± 0.3	2019-12-16
9335221	168	2019-12-10 @ 8:00 am	2019-12-13 @ 9:00 am	0.5 ± 0.3	2019-12-16
9335219	170	2019-12-10 @ 8:00 am	2019-12-13 @ 9:00 am	0.5 ± 0.3	2019-12-16
9335252	180	2019-12-10 @ 9:00 am	2019-12-13 @ 9:00 am	1.1 ± 0.3	2019-12-16
9335253	180	2019-12-10 @ 9:00 am	2019-12-13 @ 9:00 am	< 0.3	2019-12-16
9335257	181	2019-12-10 @ 9:00 am	2019-12-13 @ 9:00 am	< 0.3	2019-12-16
9335258	181	2019-12-10 @ 9:00 am	2019-12-13 @ 9:00 am	< 0.3	2019-12-16
9335259	181A	2019-12-10 @ 10:00 am	2019-12-13 @ 9:00 am	< 0.3	2019-12-16
9335254	182	2019-12-10 @ 9:00 am	2019-12-13 @ 9:00 am	< 0.3	2019-12-16
9335255	184	2019-12-10 @ 9:00 am	2019-12-13 @ 9:00 am	0.6 ± 0.3	2019-12-16
9335256	186	2019-12-10 @ 9:00 am	2019-12-13 @ 9:00 am	< 0.3	2019-12-16
9335279	206	2019-12-10 @ 11:00 am	2019-12-13 @ 9:00 am	< 0.3	2019-12-16
9335278	206	2019-12-10 @ 10:00 am	2019-12-13 @ 9:00 am	< 0.3	2019-12-16
9335277	218	2019-12-10 @ 10:00 am	2019-12-13 @ 8:00 am	< 0.3	2019-12-16
9335276	238	2019-12-10 @ 10:00 am	2019-12-13 @ 8:00 am	< 0.3	2019-12-16
9335275	256	2019-12-10 @ 10:00 am	2019-12-13 @ 8:00 am	0.5 ± 0.3	2019-12-16

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KEI Technologies Inc. Job Number 193475

NOMINAL Conditions: Radon Conc 25.7 pCi/L Rel. Hum 74.6 % Temp. 69.9 F

Date Start: 12/13/19 Date Stop: 12/16/19 Date Start: _____ Date Stop: _____
Time Start: 0806 Time Stop: 0806 Time Start: _____ Time Stop: _____
(Group 1)
Device No.'s: (20) Char. Bags - Device No.'s: _____
9334502 thru 9334510,
9334514, 9334516, 9334517,
9334519, 9334519
9334522 thru 9334528
B4

Date Start: 12/13/19 Date Stop: 12/16/19 Date Start: _____ Date Stop: _____
Time Start: 0811 Time Stop: 0811 Time Start: _____ Time Stop: _____
(Group 2)
Device No.'s: (20) Char. Bags - Device No.'s: _____
9334529 thru 9334538,
9334540,
9334542 thru 9334550
B3

Date Start: 12/13/19 Date Stop: 12/16/19 Date Start: _____ Date Stop: _____
Time Start: 0816 Time Stop: 0816 Time Start: _____ Time Stop: _____
(Group 3)
Device No.'s: (20) Char. Bags - Device No.'s: _____
9334551, 9334552, 9334562,
9334555 thru 9334559,
9334569, 9334576, 9334579,
9334580, 9334583, 9334584,
9334591, 9334593, 9334594,
9334597, 9334598, 9334599
B2

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

Radon test result report for:

MCPS - Spike Sample Lab Results. Measured values are satisfactory, i.e., within $\pm 25\%$ of the chamber's reference value (25.7 pCi/L).

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9334583	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.3 \pm 1.4	2019-12-18
9334529	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.3 \pm 1.5	2019-12-18
9334597	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.8 \pm 1.4	2019-12-18
9334534	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.3 \pm 1.4	2019-12-18
9334540	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.9 \pm 1.4	2019-12-18
9334546	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.9 \pm 1.5	2019-12-18
9334551	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.3 \pm 1.4	2019-12-18
9334558	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.6 \pm 1.4	2019-12-18
9334579	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.6 \pm 1.4	2019-12-18
9334593	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.3 \pm 1.4	2019-12-18
9334532	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.6 \pm 1.4	2019-12-18
9334537	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.8 \pm 1.4	2019-12-18
9334544	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.5 \pm 1.4	2019-12-18
9334549	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.4 \pm 1.5	2019-12-18
9334556	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.1 \pm 1.4	2019-12-18
9334569	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.7 \pm 1.4	2019-12-18
9334584	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.4 \pm 1.5	2019-12-18
9334530	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.6 \pm 1.4	2019-12-18
9334598	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.7 \pm 1.4	2019-12-18
9334535	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.0 \pm 1.4	2019-12-18
9334542	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.7 \pm 1.4	2019-12-18
9334547	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	25.2 \pm 1.5	2019-12-18
9334552	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.2 \pm 1.4	2019-12-18
9334559	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.1 \pm 1.4	2019-12-18
9334580	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.1 \pm 1.4	2019-12-18
9334594	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.1 \pm 1.4	2019-12-18
9334533	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.3 \pm 1.5	2019-12-18
9334538	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.6 \pm 1.5	2019-12-18
9334545	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.0 \pm 1.4	2019-12-18
9334550	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.1 \pm 1.4	2019-12-18
9334557	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.6 \pm 1.5	2019-12-18
9334576	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.3 \pm 1.4	2019-12-18
9334591	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.7 \pm 1.4	2019-12-18
9334531	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.3 \pm 1.5	2019-12-18
9334599	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.8 \pm 1.4	2019-12-18
9334536	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.4 \pm 1.5	2019-12-18
9334543	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.4 \pm 1.5	2019-12-18

December 18, 2019

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

N/A

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9334548	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.0 ± 1.4	2019-12-18
9334555	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.4 ± 1.4	2019-12-18
9334562	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.5 ± 1.4	2019-12-18

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

Radon test result report for:**S****N/A**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9334505	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.5 ± 1.5	2019-12-18
9334510	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.4 ± 1.5	2019-12-18
9334522	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.9 ± 1.4	2019-12-18
9334527	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	22.6 ± 1.4	2019-12-18
9334503	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.6 ± 1.4	2019-12-18
9334508	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.7 ± 1.5	2019-12-18
9334517	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.5 ± 1.4	2019-12-18
9334525	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.8 ± 1.4	2019-12-18
9334506	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.3 ± 1.5	2019-12-18
9334514	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.5 ± 1.5	2019-12-18
9334523	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.6 ± 1.4	2019-12-18
9334528	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.8 ± 1.4	2019-12-18
9334504	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.8 ± 1.4	2019-12-18
9334509	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.5 ± 1.4	2019-12-18
9334519	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.1 ± 1.4	2019-12-18
9334526	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.3 ± 1.4	2019-12-18
9334502	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.7 ± 1.4	2019-12-18
9334507	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.7 ± 1.5	2019-12-18
9334516	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	22.2 ± 1.3	2019-12-18
9334524	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.6 ± 1.5	2019-12-18



Radon Test Kit Chain of Custody

Project Name: MCPS Radon 2019 Week 1

Name of Schools:

- | | |
|-----------------------------|-------------------------|
| 1. Baker M.S. | 13. Jones Lane E.S. |
| 2. Belmont E.S. | 14. Lake Seneca E.S. |
| 3. Clarksburg E.S. | 15. McAuliffe E.S. |
| 4. Clarksburg H.S. | 16. Quince Orchard H.S. |
| 5. Clearspring E.S. | 17. Rosa Parks M.S. |
| 6. Damascus E.S. | 18. Snowden Farm E.S. |
| 7. Damascus H.S. | 19. South Lake E.S. |
| 8. Dufief E.S. | 20. Stone Mill E.S. |
| 9. Fields Road E.S. | 21. Travilah E.S. |
| 10. Gaithersburg E.S. | 22. Watkins Mill E.S. |
| 11. Germantown E.S. | 23. Watkins Mill H.S. |
| 12. Great Seneca Creek E.S. | 24. Whitman H.S. |

	Date	Initials
Radon Test Kits Deployed	12/09/19 to 12/10/19	JM
Radon Test Kits Collected	12/12/19 to 12/13/19	JM
Radon Test Kits Shipped to Lab*	12/13/19	JM
Radon Test Kits Received by Lab*	12/16/19	JM

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