



**MCPS RADON TESTING – EXECUTIVE SUMMARY**

Site Name	Rock View Elementary School
Date of Test Report	4/26/2022
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	69
# Rooms $\geq$ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.3 pCi/L

Project Status:  
Initial testing completed; no further action needed.



April 26, 2022

Brian T. Croyle, PG, CHMM  
Environmental Specialist  
Montgomery County Public Schools  
Gaithersburg, MD 20879

Re: **Radon Testing Services**  
KCI Job # 122108316

Location: Rock View Elementary School  
3901 Denfeld Ave.  
Kensington, 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 Rock View ES, located at 3901 Denfeld Ave. Kensington, 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](http://www.epa.gov/radon).

KCI visited the site on March 1, 2022 and deployed eighty (80) 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 March 4, 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 biennial post-mitigation testing.

These tests were conducted to:

- Confirm the success of the mitigation system(s).

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 and high temperatures ranged from the high 50s to the low 60s Fahrenheit. Maximum sustained winds ranged from 9-17 miles per hour. Average humidity was around 40% with 0 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:

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

<b>Quality Control Samples</b>	
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		
Rock View ES		
Test Period: 03/01/2022 - 03/04/2022		
Kit Number	Room / Area	Result
11133675	101	0.6
11133695	102	0.6
11133673	103	0.5
11133658	104	< 0.3
11133680	105	< 0.3
11133657	107	0.6
11133674	109	< 0.3
11133668	111	< 0.3
11133667	112	< 0.3
11133669	114	< 0.3
11133636	117	0.6
11133638	117	0.7
11133644	117	< 0.3
11133661	121	< 0.3
11133662	123	0.5
11133640	125	0.6
11133645	126	< 0.3
11133685	127	< 0.3
11133635	128	1.0
11133604	129	0.8
11133605	129	< 0.3
11133677	130	< 0.3
11133664	132	0.7
11133672	138	< 0.3
11133637	140	< 0.3
11133643	141	0.6
11133624	142	< 0.3
11133660	144	0.6
11133619	146	< 0.3
11133623	147	0.7
11133639	147	< 0.3
11133642	148	< 0.3
11133621	149	< 0.3
11133633	149	< 0.3
11133634	151	< 0.3
11133622	153	< 0.3
11133654	155	< 0.3
11133655	155	< 0.3
11133656	155	< 0.3
11133659	158	0.9
11133646	159	< 0.3
11133693	160	1.2



Table 1- Radon Testing Results		
Rock View ES		
Test Period: 03/01/2022 - 03/04/2022		
Kit Number	Room / Area	Result
11133694	160	1.3
11133632	161	< 0.3
11133678	162	< 0.3
11133620	163	< 0.3
11133628	164	< 0.3
11133629	165	0.9
11133627	166	< 0.3
11133641	168	< 0.3
11133630	170	< 0.3
11133631	172	< 0.3
11133679	181	0.8
11133651	182	0.8
11133676	183	< 0.3
11133686	183	< 0.3
11133687	184	< 0.3
11133653	185	< 0.3
11133688	186	< 0.3
11133700	187	0.6
11133692	188	< 0.3
11133691	189	0.7
11133699	190	0.6
11133681	191	0.8
11133601	206	< 0.3
11133647	214	0.6
11133684	100A	0.5
11133683	100B	< 0.3
11133682	100C	0.8
11133696	100D	< 0.3
11133690	102B	< 0.3
11133649	116D	0.6
11133665	116D	< 0.3
11133625	147 OFFICE	< 0.3
11133650	CAFETERIA	< 0.3
11133652	CAFETERIA	< 0.3
11133670	KITCHEN	0.8
11133689	MAIN OFFICE	< 0.3
11133697	MAIN OFFICE	< 0.3
11133698	MAIN OFFICE	< 0.3

Table 2- Radon Testing Results			
Rock View ES			
Test Period: 03/01/2022 - 03/04/2022			
Kit Number	QC Type	Room / Area	Result
11133698	D	Main office	< 0.3
11133697	FB	Main office	< 0.3
11133665	D	116d	< 0.3
11133676	D	183	< 0.3
11133638	D	117	0.7
11133644	FB	117	< 0.3
11133633	D	149	< 0.3
11133656	D	155	< 0.3
11133654	FB	155	< 0.3
11133605	D	129	< 0.3
11130861	OB	OFFICE BLANK	< 0.3
11130854	TB	TRAVEL BLANK	< 0.3



# ATTACHMENT C

## Laboratory Analytical Results

Radon test result report for:  
**ROCK VIEW ES**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11133684	100A	2022-03-01 @ 8:00 am	2022-03-04 @ 8:00 am	0.5 ± 0.3	2022-03-07
11133683	100B	2022-03-01 @ 8:00 am	2022-03-04 @ 8:00 am	< 0.3	2022-03-07
11133682	100C	2022-03-01 @ 8:00 am	2022-03-04 @ 8:00 am	0.8 ± 0.3	2022-03-07
11133696	100D	2022-03-01 @ 8:00 am	2022-03-04 @ 8:00 am	< 0.3	2022-03-07
11133675	101	2022-03-01 @ 9:00 am	2022-03-04 @ 8:00 am	0.6 ± 0.3	2022-03-07
11133695	102	2022-03-01 @ 8:00 am	2022-03-04 @ 8:00 am	0.6 ± 0.3	2022-03-07
11133690	102B	2022-03-01 @ 8:00 am	2022-03-04 @ 8:00 am	< 0.3	2022-03-07
11133673	103	2022-03-01 @ 9:00 am	2022-03-04 @ 8:00 am	0.5 ± 0.3	2022-03-07
11133658	104	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133680	105	2022-03-01 @ 9:00 am	2022-03-04 @ 8:00 am	< 0.3	2022-03-07
11133657	107	2022-03-01 @ 9:00 am	2022-03-04 @ 8:00 am	0.6 ± 0.3	2022-03-07
11133674	109	2022-03-01 @ 9:00 am	2022-03-04 @ 8:00 am	< 0.3	2022-03-07
11133668	111	2022-03-01 @ 9:00 am	2022-03-04 @ 8:00 am	< 0.3	2022-03-07
11133667	112	2022-03-01 @ 9:00 am	2022-03-04 @ 8:00 am	< 0.3	2022-03-07
11133669	114	2022-03-01 @ 9:00 am	2022-03-04 @ 8:00 am	< 0.3	2022-03-07
11133649	116D	2022-03-01 @ 10:00 am	2022-03-04 @ 8:00 am	0.6 ± 0.3	2022-03-07
11133665	116D	2022-03-01 @ 10:00 am	2022-03-04 @ 8:00 am	< 0.3	2022-03-07
11133638	117	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	0.7 ± 0.3	2022-03-07
11133644	117	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133636	117	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	0.6 ± 0.3	2022-03-07
11133661	121	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133662	123	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	0.5 ± 0.3	2022-03-07
11133640	125	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	0.6 ± 0.3	2022-03-07
11133645	126	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133685	127	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133635	128	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	1.0 ± 0.3	2022-03-07
11133604	129	2022-03-01 @ 10:00 am	2022-03-04 @ 9:00 am	0.8 ± 0.3	2022-03-07
11133605	129	2022-03-01 @ 10:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133677	130	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133664	132	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	0.7 ± 0.3	2022-03-07
11133672	138	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133637	140	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133643	141	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	0.6 ± 0.3	2022-03-07
11133624	142	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133660	144	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	0.6 ± 0.3	2022-03-07
11133619	146	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133639	147	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07

Radon test result report for:  
**ROCK VIEW ES**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11133623	147	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	0.7 ± 0.3	2022-03-07
11133625	147 OFFICE	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133642	148	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133621	149	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133633	149	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133634	151	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133622	153	2022-03-01 @ 10:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133655	155	2022-03-01 @ 10:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133656	155	2022-03-01 @ 10:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133654	155	2022-03-01 @ 10:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133659	158	2022-03-01 @ 10:00 am	2022-03-04 @ 9:00 am	0.9 ± 0.3	2022-03-07
11133646	159	2022-03-01 @ 10:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133693	160	2022-03-01 @ 10:00 am	2022-03-04 @ 9:00 am	1.2 ± 0.3	2022-03-07
11133694	160	2022-03-01 @ 10:00 am	2022-03-04 @ 9:00 am	1.3 ± 0.3	2022-03-07
11133632	161	2022-03-01 @ 10:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133678	162	2022-03-01 @ 10:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133620	163	2022-03-01 @ 10:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133628	164	2022-03-01 @ 10:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133629	165	2022-03-01 @ 10:00 am	2022-03-04 @ 8:00 am	0.9 ± 0.3	2022-03-07
11133627	166	2022-03-01 @ 10:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133641	168	2022-03-01 @ 10:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133630	170	2022-03-01 @ 10:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133631	172	2022-03-01 @ 10:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133679	181	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	0.8 ± 0.3	2022-03-07
11133651	182	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	0.8 ± 0.3	2022-03-07
11133686	183	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133676	183	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133687	184	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133653	185	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133688	186	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133700	187	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	0.6 ± 0.3	2022-03-07
11133692	188	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133691	189	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	0.7 ± 0.3	2022-03-07
11133699	190	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	0.6 ± 0.3	2022-03-07
11133681	191	2022-03-01 @ 9:00 am	2022-03-04 @ 9:00 am	0.8 ± 0.3	2022-03-07
11133601	206	2022-03-01 @ 10:00 am	2022-03-04 @ 9:00 am	< 0.3	2022-03-07
11133647	214	2022-03-01 @ 10:00 am	2022-03-04 @ 9:00 am	0.6 ± 0.3	2022-03-07

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March 8, 2022

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:  
**ROCK VIEW ES**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11133650	CAFETERIA	2022-03-01 @ 9:00 am	2022-03-04 @ 8:00 am	< 0.3	2022-03-07
11133652	CAFETERIA	2022-03-01 @ 9:00 am	2022-03-04 @ 8:00 am	< 0.3	2022-03-07
11133670	KITCHEN	2022-03-01 @ 9:00 am	2022-03-04 @ 8:00 am	0.8 ± 0.3	2022-03-07
11133697	MAIN OFFICE	2022-03-01 @ 8:00 am	2022-03-04 @ 8:00 am	< 0.3	2022-03-07
11133689	MAIN OFFICE	2022-03-01 @ 8:00 am	2022-03-04 @ 8:00 am	< 0.3	2022-03-07
11133698	MAIN OFFICE	2022-03-01 @ 8:00 am	2022-03-04 @ 8:00 am	< 0.3	2022-03-07

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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 204620

NOMINAL Conditions: Radon Conc 27.0 pCi/L Rel. Hum 50.1 % Temp. 70.0 F

Date Start: 3/18/22 Date Stop: 3/21/22 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0705 Time Stop: 0705 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (5) Char Bags - Device No.'s: \_\_\_\_\_

11139367, 11139368, 11139371, \_\_\_\_\_

11139710, 11139717 \_\_\_\_\_

E3 light

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  $\mu$ R/h Elevation = 820 ft



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March 30, 2022

**\*\* LABORATORY ANALYSIS REPORT \*\***

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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).

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11139367	SK1	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	25.9 $\pm$ 2.1	2022-03-30
11139368	SK2	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	23.9 $\pm$ 2.0	2022-03-30
11139371	SK3	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	25.7 $\pm$ 2.1	2022-03-30
11139710	SK4	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	26.4 $\pm$ 2.1	2022-03-30
11139717	SK5	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	24.6 $\pm$ 2.0	2022-03-30

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

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March 30, 2022

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:

**RSH  
MAIN**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11139726	BASEMENT	2022-03-20 @ 8:00 am	2022-03-23 @ 7:00 am	0.9 ± 0.5	2022-03-30
11139725	DINING	2022-03-20 @ 8:00 am	2022-03-23 @ 7:00 am	< 0.3	2022-03-30

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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 – March 2022 Schools

**Name of Schools:**

1. Newport Mill MS
2. Rock View ES
3. Eastern MS
4. Blair, Montgomery HS
5. Montgomery Knolls ES
6. Northwood HS
7. Oakview ES
8. Pine Crest ES
9. Arcola ES
10. Glenallen ES

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	Date	Initials
Radon Test Kits Deployed	03/01/2022	PM
Radon Test Kits Collected	03/04/2022	PM
Radon Test Kits Shipped to Lab*	03/04/2022	PM
Radon Test Kits Received by Lab*	03/07/2022	PM

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