



**MCPS RADON TESTING – EXECUTIVE SUMMARY**

Site Name	Brown Station Elementary School
Date of Test Report	5/1/2023
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	48
# Rooms $\geq$ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	2.5 pCi/L

Project Status:

1. 5-Year Re-testing completed.



May 1, 2023

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

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

Location: Brown Station Elementary School  
851 Quince Orchard Blvd.  
Gaithersburg, MD 20878

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 Brown Station Elementary School, located at 851 Quince Orchard Blvd. in Gaithersburg, MD 20878 (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 April 18, 2023 and deployed fifty-five (55) 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 April 21, 2023 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 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 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 mid-60s and high temperatures ranged from the mid-50s to the high 80s. Maximum sustained winds ranged from 0 to 36 miles per hour. Average humidity was around 53% with 0.02 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	

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		
Brown Station ES		
Test Period: 04/18/2023 - 04/21/2023		
Kit Number	Room / Area	Result
11288442	1	1.2
11288450	2	0.9
11288451	6	0.6
11288467	8	1.1
11288469	12	1.3
11288461	14	1.8
11288466	14	< 0.3
11288435	18	1.3
11288462	18	1.2
11634159	22	0.9
11288434	24	0.7
11288441	26	0.9
11288447	30	1.4
11288460	32	2.5
11288468	36	2.3
11288440	38	1.2
11288439	42	1.7
11634170	101	0.6
11288431	102	1.0
11634177	105	< 0.3
11634164	107	< 0.3
11634169	107	< 0.3
11288452	111	< 0.3
11634174	113	< 0.3
11288444	119	< 0.3
11634176	120	< 0.3
11634172	125	< 0.3
11634165	129	< 0.3
11634163	135	2.2
11288436	137	< 0.3
11634167	137	< 0.3
11634171	141	1.0
11288437	149	0.9
11288443	149	0.6
11288453	157	< 0.3
11634158	157	< 0.3
11288459	201	0.7
11634160	201	0.7
11288446	212	< 0.3
11634181	100B	< 0.3
11634173	100C	0.6
11634182	100D	< 0.3



Kit Number	Room / Area	Result
11634183	100G	< 0.3
11634161	100J	< 0.3
11634175	100K	< 0.3
11634178	102B	< 0.3
11288448	102C	0.9
11634168	131D	< 0.3
11288429	137A	< 0.3
11288430	137A	< 0.3
11288445	157B	< 0.3
11288428	GYM	0.6
11634166	GYM	0.8
11288438	KITCHEN OFFICE	0.6
11634162	MAIN OFFICE	0.9

Table 2- Radon Testing Results			
Brown Station ES			
Test Period: 04/18/23 - 04/21/23			
Kit Number	QC Type	Room / Area	Result
11288466	FB	14	< 0.3
11288462	D	18	1.2
11634164	D	107	< 0.3
11288436	D	137	< 0.3
11634158	D	157	< 0.3
11288459	D	201	0.7
11288429	FB	137a	< 0.3
11635074	OB	OFFICE BLANK	< 0.3
11635068	TB	TRAVEL BLANK	< 0.3



# ATTACHMENT C

## Laboratory Analytical Results

Radon test result report for:  
**BROWN STATION ES**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11288442	001	2023-04-18 @ 10:00 am	2023-04-21 @ 8:00 am	1.2 ± 0.3	2023-04-25
11288450	002	2023-04-18 @ 10:00 am	2023-04-21 @ 8:00 am	0.9 ± 0.3	2023-04-25
11288451	006	2023-04-18 @ 10:00 am	2023-04-21 @ 8:00 am	0.6 ± 0.3	2023-04-25
11288467	008	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	1.1 ± 0.3	2023-04-25
11634181	100B	2023-04-18 @ 8:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25
11634173	100C	2023-04-18 @ 8:00 am	2023-04-21 @ 8:00 am	0.6 ± 0.3	2023-04-25
11634182	100D	2023-04-18 @ 8:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25
11634183	100G	2023-04-18 @ 8:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25
11634161	100J	2023-04-18 @ 8:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25
11634175	100K	2023-04-18 @ 8:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25
11634170	101	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	0.6 ± 0.3	2023-04-25
11288431	102	2023-04-18 @ 10:00 am	2023-04-21 @ 8:00 am	1.0 ± 0.3	2023-04-25
11634178	102B	2023-04-18 @ 10:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25
11634177	105	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25
11634164	107	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25
11634169	107	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25
11288452	111	2023-04-18 @ 10:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25
11634174	113	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25
11288444	119	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25
11288469	12	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	1.3 ± 0.3	2023-04-25
11634176	120	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25
11634172	125	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25
11634165	129	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25
11634168	131D	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25
11634163	135	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	2.2 ± 0.4	2023-04-25
11288436	137	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25
11634167	137	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25
11288430	137A	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25
11288429	137A	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25
11288466	14	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25
11288461	14	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	1.8 ± 0.4	2023-04-25
11634171	141	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	1.0 ± 0.3	2023-04-25
11288443	149	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	0.6 ± 0.3	2023-04-25
11288437	149	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	0.9 ± 0.3	2023-04-25
11634158	157	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25
11288453	157	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25
11288445	157B	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25

Radon test result report for:  
**BROWN STATION ES**  
**MAIN**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11288462	18	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	1.2 ± 0.4	2023-04-25
11288435	18	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	1.3 ± 0.4	2023-04-25
11288459	201	2023-04-18 @ 10:00 am	2023-04-21 @ 8:00 am	0.7 ± 0.3	2023-04-25
11634160	201	2023-04-18 @ 10:00 am	2023-04-21 @ 8:00 am	0.7 ± 0.3	2023-04-25
11288446	212	2023-04-18 @ 10:00 am	2023-04-21 @ 8:00 am	< 0.3	2023-04-25
11634159	22	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	0.9 ± 0.3	2023-04-25
11288434	24	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	0.7 ± 0.3	2023-04-25
11288441	26	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	0.9 ± 0.3	2023-04-25
11288447	30	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	1.4 ± 0.4	2023-04-25
11288460	32	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	2.5 ± 0.4	2023-04-25
11288468	36	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	2.3 ± 0.4	2023-04-25
11288440	38	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	1.2 ± 0.4	2023-04-25
11288439	42	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	1.7 ± 0.3	2023-04-25
11634166	GYM	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	0.8 ± 0.3	2023-04-25
11288428	GYM	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	0.6 ± 0.3	2023-04-25
11288438	KITCHEN OFFICE	2023-04-18 @ 9:00 am	2023-04-21 @ 8:00 am	0.6 ± 0.3	2023-04-25
11634162	MAIN OFFICE	2023-04-18 @ 8:00 am	2023-04-21 @ 8:00 am	0.9 ± 0.3	2023-04-25

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April 25, 2023

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

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Radon test result report for:

**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>
11288448	102C	2023-04-18 @ 10:00 am	2023-04-21 @ 8:00 am	0.9 ± 0.3	2023-04-25

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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 208802

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

Date Start: 1/27/23 Date Stop: 1/30/23 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0816 Time Stop: 0816 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (5) CHAR BAGS Device No.'s: \_\_\_\_\_

11633682, 11633687, 11633688 \_\_\_\_\_

11633695, 11633696 \_\_\_\_\_

P3 left

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_ Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

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

Device No.'s: \_\_\_\_\_ Device No.'s: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_ Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

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

Device No.'s: \_\_\_\_\_ Device No.'s: \_\_\_\_\_

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\_\_\_\_\_

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



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February 3, 2023

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

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Radon test result report for:

**OFFICE**

**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>
11633696	SK10	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	24.2 ± 1.9	2023-02-03
11633682	SK6	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	26.9 ± 2.1	2023-02-03
11633687	SK7	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	23.8 ± 1.9	2023-02-03
11633688	SK8	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	25.9 ± 2.1	2023-02-03
11633695	SK9	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	27.0 ± 2.2	2023-02-03

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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 – Testing April 18<sup>th</sup> to April 21<sup>st</sup>

Name of Schools:

1. Brown Station ES
2. Harriet Tubman ES

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	Date	Initials
Radon Test Kits Deployed	04/18/2023	<i>BWDM</i>
Radon Test Kits Collected	04/21/2023	<i>BWDM</i>
Radon Test Kits Shipped to Lab*	04/21/2023	<i>BWDM</i>
Radon Test Kits Received by Lab*	04/25/2023	<i>BWDM</i>

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

**RADON SCREENING SURVEY – FOLLOW-UP BROWN STATION ELEMENTARY  
SCHOOL**

851 Quince Orchard Blvd., Gaithersburg, Maryland 20878

**EXECUTIVE SUMMARY**

Date of Test Report:	3/9/18
Round of Testing:	Initial <b>Follow-up</b> Post Remediation
# Rooms Tested	11
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	<0.3
High Value:	1.7
Confirmed Rooms $\geq$ 4.0 pCi/L US EPA Action Level	0

**Summary of Sampling Events  $\geq$  4.0 pCi/L**

Room	Result (pCi/L) 2/2/18	Result (pCi/L) 3/9/18	Average Result (pCi/L)
30	5.0	1.7	3.4
32	4.0	1.7	2.9



**MCPS RADON TESTING - EXECUTIVE SUMMARY**

Site Name	Brown Station Elementary School
Date of Report	March 9, 2018
Round of Testing	Initial <b>Follow-up</b> Post Remediation 2 year testing 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	11
# Rooms $\geq$ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.7 pCi/L

**Project Status**

Current Project Status at this time: Retesting completed; use the average of the initial and re-test results in a room to determine if remediation is necessary.



March 9, 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: Brown Station Elementary School**

851 Quince Orchard Blvd.  
Gaithersburg, Maryland 20878

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 Brown Station Elementary School, located at 851 Quince Orchard Blvd. in Gaithersburg, Maryland 20878 (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](http://www.montgomerycountymd.gov/dep/air/radon) or [www.epa.gov/radon](http://www.epa.gov/radon).

KCI visited the site on February 12, 2018 and deployed thirteen (13) 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.  $\geq 3.5$  pCi/L).

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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 15, 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 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-20s to upper 40s and high temperatures ranged from the high-30s to the high-60s. Maximum sustained winds ranged from 10-15 miles per hour. Average humidity was around 69%. 0.05 Inches of precipitation was recorded during the testing period.

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## **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:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
$\geq 4.0$ pCi/L	None	N/A
$\leq 4.0$ pCi/L	See Attachment B	See Attachment B

<b>Quality Control Samples</b>	
Results of Blank Canisters:	The field blank, 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

<b>Table 1- Radon Testing Results</b>		
<b>Brown Station Elementary School</b>		
<b>Test Period: 02/12/18-02/15/18</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7984205	30	1.7
7984206	32	1.7
7984208	105	< 0.3
7984209	107	< 0.3
7984210	115	< 0.3
7984201	157	< 0.3
7984207	100G	1.0
7984203	GYM OFFICE	< 0.3
7984211	KITCHEN	< 0.3
7984212	KITCHEN OFFICE	< 0.3
7984204	MEDIA	< 0.3

Table Note:

\* Missing or Compromised Sample

<b>Table 2- Radon Testing Results</b>		
<b>Brown Station Elementary School</b>		
<b>Test Period: 02/12/18-02/15/18</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7984202	D (GYM OFFICE)	0.6
7984213	FB (MEDIA)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

February 27, 2018

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

Radon test result report for:

**BROWN STATION ELEMENTARY SCHOOL  
MAIN**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7984207	100G	2018-02-12 @ 8:00 am	2018-02-15 @ 8:00 am	1.0 ± 0.4	2018-02-19
7984208	105	2018-02-12 @ 8:00 am	2018-02-15 @ 8:00 am	< 0.3	2018-02-19
7984209	107	2018-02-12 @ 8:00 am	2018-02-15 @ 8:00 am	< 0.3	2018-02-19
7984210	115	2018-02-12 @ 8:00 am	2018-02-15 @ 8:00 am	< 0.3	2018-02-19
7984201	157	2018-02-12 @ 8:00 am	2018-02-15 @ 8:00 am	< 0.3	2018-02-19
7984205	30	2018-02-12 @ 8:00 am	2018-02-15 @ 8:00 am	1.7 ± 0.4	2018-02-19
7984206	32	2018-02-12 @ 8:00 am	2018-02-15 @ 8:00 am	1.7 ± 0.4	2018-02-19
7984202	GYM OFFICE	2018-02-12 @ 8:00 am	2018-02-15 @ 8:00 am	0.6 ± 0.4	2018-02-19
7984203	GYM OFFICE	2018-02-12 @ 8:00 am	2018-02-15 @ 8:00 am	< 0.3	2018-02-19
7984211	KITCHEN	2018-02-12 @ 8:00 am	2018-02-15 @ 8:00 am	< 0.3	2018-02-19
7984212	KITCHEN OFFICE	2018-02-12 @ 8:00 am	2018-02-15 @ 8:00 am	< 0.3	2018-02-19
7984213	MEDIA	2018-02-12 @ 8:00 am	2018-02-15 @ 8:00 am	< 0.3	2018-02-19
7984204	MEDIA	2018-02-12 @ 8:00 am	2018-02-15 @ 8:00 am	< 0.3	2018-02-19

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

Names of Schools:

1. Highland Elementary School
2. Stephen Knolls Elementary School
3. Silver Creek Middle School
4. Woodlin Elementary School
5. Sligo Creek Elementary School
6. Francis Scott Key Middle School
7. John T. Baker Middle School
8. Cedar Grove Elementary School
9. Clarksburg Elementary School
10. Clarksburg Elementary School Annex
11. Fields Road Elementary School
12. Dufief Elementary School
13. Brown Station Elementary School
14. Diamond Elementary School
15. Fallsmeade Elementary School
16. Thomas Whootton High School
17. Lake Seneca Elementary School
18. Redland Middle School
19. Newport Mill Middle School
20. Bethesda Trans. and Maint. Depot
21. Sequoyah Elementary School
22. Gaithersburg Middle School
23. Wayside Elementary School
24. Travilah Elementary School
25. Damascus High School
26. Jones Lane Elementary School
27. Greencastle Elementary School
28. Spring Brook High School
29. Montgomery Blair High School
30. Watkins Mill High School

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	Date	Initials
Radon Test Kits Deployed	2/12/18	JM
Radon Test Kits Collected	2/15/18	JM
Radon Test Kits Shipped to Lab*	2/15/18	JM
Radon Test Kits Received by Lab*	2/19/15	JM

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

Radon test result report for:  
**OFFICE BLANKS**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
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



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February 28, 2018

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

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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).**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
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

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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	Brown Station 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 <b>New Facility</b>
# of Rooms Tested	57
# Rooms $\geq$ 4.0 pCi/L	2
Lowest Value	< 0.3 pCi/L
Highest Value	5.0 pCi/L

Rooms with results  $\geq$  4.0 pCi/L:

30 (5.0 pCi/L), 32 (4.0 pCi/L)

Current Project Status at this time: Testing Completed; retesting needed for results  $\geq$  4.0 pCi/L.

Missing or compromised samples need re-test.



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: Brown Station Elementary School**

851 Quince Orchard Blvd.  
Gaithersburg, Maryland 20878

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 Brown Station Elementary School, located at 851 Quince Orchard Blvd. in Gaithersburg, Maryland 20878 (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](http://www.montgomerycountymd.gov/dep/air/radon) or [www.epa.gov/radon](http://www.epa.gov/radon).

KCI visited the site on December 4, 2017 and deployed sixty-nine (69) 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:

- 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 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:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
≥4.0 pCi/L	30	5.0
≥4.0 pCi/L	32	4.0
≤4.0 pCi/L	See Attachment B	See Attachment B

<b>Quality Control Samples</b>	
Results of Blank Canisters:	The office blank, one field blank, and lab transit blanks had test results of less than the laboratory detection limit of 0.3 pCi/L. One field blank result indicated a low concentration of radon, which could indicate the field blank was incompletely sealed during deployment.
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 Moulds, CHMM  
Radon Measurement Specialist  
KCI Technologies, Inc.

Attachments:

B- Tables 1-3, 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

<b>Radon Testing Results</b>		
<b>Brown Station Elementary School</b>		
<b>Test Period: 12/04/17-12/07/17</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7978347	1	0.6
7978321	2	1.1
7978342	6	0.8
7978344	8	2.0
7978343	12	3.3
7978398	14	1.9
7978390	18	0.8
7978394	20	1.0
7978393	24	1.0
7978392	26	1.1
7978391	30	5.0
7978399	32	4.0
7978395	36	1.8
7976618	38	1.3
7978352	42	3.5
7977672	100	1.4
7978369	101	1.8
7978364	102	0.9
7978383	111	1.1
7978375	113	1.0
7978373	114	0.8
7978378	116	1.1
7978384	119	1.5
7978382	120	0.9
7978385	122	0.9
7978380	125	1.0
7978389	126	0.7
7978323	128	0.9
7978341	129	1.2
7976914	132	0.7
7977626	134	0.8
7978400	135	1.2
7976609	137	0.7
7977607	138	0.8
7976608	141	2.1
7976604	149	1.0
7978346	203	0.7
7978351	207	0.5
7978313	215	< 0.3
7976610	221	0.8
7978359	100B	3.0
7978360	100C	1.1
7978363	100D	1.3
7978366	100H	1.0
7978370	100J	0.9
7978371	100K	< 0.3

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Brown Station Elementary School</b>		
<b>Test Period: 12/04/17-12/07/17</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7978362	102B	1.3
7978361	102C	1.3
7978376	* 105 (Open Door)	0.8
7978377	* 107 (Open Door)	1.4
7978379	* 115 (Tampered)	0.7
7978353	137A	0.7
7978322	* 157 (Tampered)	< 0.3
7978388	157B	0.6
7977617	GYM	0.6
7976605	GYM	0.6
7977614	* GYM OFFICE (Missing)	< 0.3
7978372	* MEDIA (Tampered)	0.9

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Brown Station Elementary School</b>		
<b>Test Period: 12/04/17-12/07/17</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7978367	D (100H)	0.9
7978374	D (116)	1.1
7978386	D (129)	1.8
7976603	D (149)	1.1
7978357	D (18)	0.6
7978315	D (215)	0.6
7978358	D (38)	1.5
7978368	D (MEDIA)	0.7
7977618	FB (128)	0.6
7978397	FB (14)	< 0.3
7194089	OB (OFFICE BLANK)	< 0.3

Table Note:

\* Missing or Compromised Sample



# ATTACHMENT C

## Laboratory Analytical Results

Radon test result report for:

**BROWN STATION ELEMENTARY SCHOOL  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7978347	1	2017-12-04 @ 9:00 am	2017-12-07 @ 10:00 am	0.6 ± 0.3	2017-12-12
7977672	100	2017-12-04 @ 7:00 am	2017-12-07 @ 9:00 am	1.4 ± 0.4	2017-12-12
7978359	100B	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	3.0 ± 0.5	2017-12-12
7978360	100C	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	1.1 ± 0.4	2017-12-12
7978363	100D	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	1.3 ± 0.4	2017-12-12
7978366	100H	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	1.0 ± 0.4	2017-12-12
7978367	100H	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	0.9 ± 0.4	2017-12-12
7978370	100J	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	0.9 ± 0.4	2017-12-12
7978371	100K	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	< 0.3	2017-12-12
7978369	101	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	1.8 ± 0.4	2017-12-12
7978364	102	2017-12-04 @ 7:00 am	2017-12-07 @ 9:00 am	0.9 ± 0.4	2017-12-12
7978362	102B	2017-12-04 @ 7:00 am	2017-12-07 @ 10:00 am	1.3 ± 0.4	2017-12-12
7978361	102C	2017-12-04 @ 7:00 am	2017-12-07 @ 9:00 am	1.3 ± 0.4	2017-12-12
7978376	105	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	0.8 ± 0.4	2017-12-12
7978377	107	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	1.4 ± 0.4	2017-12-12
7978383	111	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	1.1 ± 0.4	2017-12-12
7978375	113	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	1.0 ± 0.4	2017-12-12
7978373	114	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	0.8 ± 0.4	2017-12-12
7978379	115	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	0.7 ± 0.4	2017-12-12
7978378	116	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	1.1 ± 0.4	2017-12-12
7978374	116	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	1.1 ± 0.4	2017-12-12
7978384	119	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	1.5 ± 0.4	2017-12-12
7978343	12	2017-12-04 @ 9:00 am	2017-12-07 @ 10:00 am	3.3 ± 0.5	2017-12-12
7978382	120	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	0.9 ± 0.4	2017-12-12
7978385	122	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	0.9 ± 0.4	2017-12-12
7978380	125	2017-12-04 @ 8:00 am	2017-12-07 @ 10:00 am	1.0 ± 0.4	2017-12-12
7978389	126	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	0.7 ± 0.4	2017-12-12
7977618	128	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	0.6 ± 0.4	2017-12-12
7978323	128	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	0.9 ± 0.4	2017-12-12
7978386	129	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	1.8 ± 0.4	2017-12-12
7978341	129	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	1.2 ± 0.4	2017-12-12
7976914	132	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	0.7 ± 0.4	2017-12-12
7977626	134	2017-12-04 @ 8:00 am	2017-12-07 @ 10:00 am	0.8 ± 0.4	2017-12-12
7978400	135	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	1.2 ± 0.4	2017-12-12
7976609	137	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	0.7 ± 0.4	2017-12-12
7978353	137A	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	0.7 ± 0.4	2017-12-12
7977607	138	2017-12-04 @ 8:00 am	2017-12-07 @ 10:00 am	0.8 ± 0.4	2017-12-12

Radon test result report for:

**BROWN STATION ELEMENTARY SCHOOL  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7978397	14	2017-12-04 @ 9:00 am	2017-12-07 @ 9:00 am	< 0.3	2017-12-12
7978398	14	2017-12-04 @ 9:00 am	2017-12-07 @ 9:00 am	1.9 ± 0.4	2017-12-12
7976608	141	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	2.1 ± 0.4	2017-12-12
7976603	149	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	1.1 ± 0.4	2017-12-12
7976604	149	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	1.0 ± 0.4	2017-12-12
7978322	157	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	< 0.3	2017-12-12
7978388	157B	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	0.6 ± 0.4	2017-12-12
7978357	18	2017-12-04 @ 9:00 am	2017-12-07 @ 9:00 am	0.6 ± 0.3	2017-12-12
7978390	18	2017-12-04 @ 9:00 am	2017-12-07 @ 9:00 am	0.8 ± 0.3	2017-12-12
7978321	2	2017-12-04 @ 9:00 am	2017-12-07 @ 10:00 am	1.1 ± 0.4	2017-12-12
7978394	20	2017-12-04 @ 9:00 am	2017-12-07 @ 9:00 am	1.0 ± 0.4	2017-12-12
7978346	203	2017-12-04 @ 9:00 am	2017-12-07 @ 10:00 am	0.7 ± 0.4	2017-12-12
7978351	207	2017-12-04 @ 9:00 am	2017-12-07 @ 10:00 am	0.5 ± 0.3	2017-12-12
7978313	215	2017-12-04 @ 9:00 am	2017-12-07 @ 10:00 am	< 0.3	2017-12-12
7978315	215	2017-12-04 @ 9:00 am	2017-12-07 @ 10:00 am	0.6 ± 0.4	2017-12-12
7976610	221	2017-12-04 @ 9:00 am	2017-12-07 @ 10:00 am	0.8 ± 0.4	2017-12-12
7978393	24	2017-12-04 @ 9:00 am	2017-12-07 @ 9:00 am	1.0 ± 0.4	2017-12-12
7978392	26	2017-12-04 @ 9:00 am	2017-12-07 @ 9:00 am	1.1 ± 0.4	2017-12-12
7978391	30	2017-12-04 @ 9:00 am	2017-12-07 @ 9:00 am	5.0 ± 0.5	2017-12-12
7978399	32	2017-12-04 @ 9:00 am	2017-12-07 @ 9:00 am	4.0 ± 0.5	2017-12-12
7978395	36	2017-12-04 @ 9:00 am	2017-12-07 @ 9:00 am	1.8 ± 0.4	2017-12-12
7976618	38	2017-12-04 @ 9:00 am	2017-12-07 @ 9:00 am	1.3 ± 0.4	2017-12-12
7978358	38	2017-12-04 @ 9:00 am	2017-12-07 @ 9:00 am	1.5 ± 0.4	2017-12-12
7978352	42	2017-12-04 @ 9:00 am	2017-12-07 @ 9:00 am	3.5 ± 0.5	2017-12-12
7978342	6	2017-12-04 @ 9:00 am	2017-12-07 @ 10:00 am	0.8 ± 0.4	2017-12-12
7978344	8	2017-12-04 @ 9:00 am	2017-12-07 @ 10:00 am	2.0 ± 0.4	2017-12-12
7976605	GYM	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	0.6 ± 0.4	2017-12-12
7977617	GYM	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	0.6 ± 0.4	2017-12-12
7977614	GYM OFFICE	2017-12-04 @ 8:00 am	2017-12-07 @ 10:00 am	< 0.3	2017-12-12
7978368	MEDIA	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	0.7 ± 0.4	2017-12-12
7978372	MEDIA	2017-12-04 @ 8:00 am	2017-12-07 @ 9:00 am	0.9 ± 0.4	2017-12-12
7194089	OFFICE BLANK	2017-12-04 @ 1:00 pm	2017-12-07 @ 1:00 pm	< 0.3	2017-12-12





## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase

Names of Schools:

- |                                       |                                  |
|---------------------------------------|----------------------------------|
| 1. Brooke Grove Elementary School     | 14. Newport Mill Middle School   |
| 2. Brown Station Elementary School    | 15. Oakview Elementary School    |
| 3. Diamond Elementary School Addition | 16. Quince Orchard High School   |
| 4. Dufief Elementary School           | 17. Robert Frost Middle School   |
| 5. Emory Grove Center                 | 18. Rosa Parks Middle School     |
| 6. Fields Road Elementary School      | 19. South Lake 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      |                                  |

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	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

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December 19, 2017

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

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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).**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
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

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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  $\mu$ R/h Elevation = 820 ft